

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 5,7 n 26  
Edition : 16.01.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 876 145  
Injection pump  
Pump designation : PES6A90D410RS2293  
EP type number : 0 410 896 031  
Governor  
Governor design. : RSV350...1425A2B1028  
DL  
Governor no. : 0 420 234 248

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 353

1st version kW : 92.0  
Rated speed : 2850

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25  
: (2.10...2.30)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 9.50...9.60

Del. quantity cm<sup>3</sup>/ : 6.2...6.3

100 s : (6.0...6.5)

Spread cm<sup>3</sup> : 0.3

100 s : (0.4)

2nd speed rpm : 350.0

Rack travel in mm : 7.4...7.6

Del. quantity cm<sup>3</sup>/ : 0.9...1.5

100 s : (0.7...1.7)

Spread cm<sup>3</sup> : 0.2

100 s : (0.4)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del. quantity : 62.0...63.0

1000 : (60.0...65.0)

Spread cm<sup>3</sup> : 3.00

1000 : (4.50)

## RATED SPEED

1st version

Control lever

position degrees: 106...114

Testing:

1st rack travel in: 9.50

Speed rpm : 1455...1465

4th rack travel in: 1500

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever  
position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 7.0

Testing:

Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 350  
Rack travel in mm : 7.40...7.60  
Rack travel in mm : 2.00  
Speed rpm : 570...630

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 9.50...9.60  
2nd speed rpm : 450  
Rack travel in m: 9.90...10.00

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9.50  
Speed rpm : 1455...1465

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 15.10...15.50

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 7.40...7.60  
Del.quantity cm<sup>3</sup>/ : 9.0...15.0  
1000 s: (7.0...17.0)  
Spread cm<sup>3</sup> : 2.00  
1000 s: (4.00)

Remarks:

:



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 5,7 o 3  
 Edition : 16.01.91  
 Replaces : 11.80  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 167  
 Injection pump  
 Pump designation : PES6A90D410RS2293  
 EP type number : 0 410 896 031  
 Governor  
 Governor design. : RSV575...1250A8B614L  
 Governor no. : 0 420 232 171

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM352

1st version kW : 91.0  
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.15...2.25  
 : (2.10...2.30)

Rack travel in mm : 9.00...12.00

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Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1230

Rack travel in mm : 9.80...9.90

Del.quantity cm<sup>3</sup>/ : 6.2...6.3

100 s: (6.0...6.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.4)

2nd speed rpm : 575.0

Rack travel in mm : 5.5...5.7

Del.quantity cm<sup>3</sup>/ : 0.9...1.5

100 s: (0.7...1.7)

Spread cm<sup>3</sup> : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1230

Del.quantity : 62.5...63.5

1000 : (60.5...65.5)

Spread cm<sup>3</sup> : 3.00

1000 : (4.50)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 9.80

Speed rpm : 1290...1300

4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever  
position degrees: 69...77  
Setting point w/out bumper spring  
Speed rpm : 575  
Rack travel in mm : 5.1

Testing:  
Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 575  
Rack travel in mm : 5.00...5.20  
Rack travel in mm : 2.00  
Speed rpm : 530...590

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1230  
Rack travel in m: 9.80...9.90  
2nd speed rpm : 500  
Rack travel in m: 10.30...10.40

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9.80  
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 15.10...15.50

LOW IDLE

Speed rpm : 575  
Rack travel in mm : 5.50...5.70  
Del.quantity cm<sup>3</sup>/ : 9.0...15.0  
1000 s: (7.0...17.0)  
Spread cm<sup>3</sup> : 2.00  
1000 s: (4.00)

Remarks:  
:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 6,1 e 8  
Edition : 26.04.91  
Replaces : 8.6.90  
Test oil : ISO-4113  
Combination no. : 0 400 876 275  
Injection pump  
Pump designation : PES6A95D410RS2471  
EP type number : 0 410 896 952  
Governor  
Governor design. : RSV325...1150A8C674-3L  
Governor no. : 0 420 232 543

Customer-spec. information  
Customer : KHD

Engine : BF6L913C

1st version kW : 132.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 11.80...11.90

Del. quantity cm<sup>3</sup>/ : 10.8...11.0

100 s : (10.6...11.2)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 7.2...7.4

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s : (1.3...2.4)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 700

Del. quantity : 108.0...110.0

1000 : (106.0...112.0)

Spread cm<sup>3</sup> : 3.00

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 10.80

Speed rpm : 1190...1200

2nd rack travel in: 4.00

Speed rpm : 1235...1265

3rd rack travel in: 4.00  
Speed rpm : 1285...1315  
4th rack travel in: 1400  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 67...75  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 6.8

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 325  
Rack travel in mm : 7.20...7.40  
Rack travel in mm : 2.00  
Speed rpm : 585...645

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 11.80...11.90  
2nd speed rpm : 500  
Rack travel in m: 11.80...12.00

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 11.80...11.90

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.80...10.00  
2nd pressure hPa : 340  
Rack travel in m: 11.30...11.40  
3rd pressure hPa : 160  
Rack travel in m: 10.40...10.70

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700  
Speed rpm : 850  
Del. quantity cm<sup>3</sup>/ : 103.5...106.5  
1000 s: (101.0...109.0)  
Spread cm<sup>3</sup> : -  
1000 s: (7.00)  
Aneroid pressure h: -  
Speed rpm : 500

Del. quantity cm<sup>3</sup>/ : 62.0...64.0  
1000 s: (60.0...66.0)

#### RACK STOP ADJUSTMENT

Speed rpm : 500

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.80  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 15.50...15.90

#### Remarks:

:  
Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

The stop position of the control rod  
must be easily reached with the stop  
lever

#### APPLICATION

Installation 2300

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : VAL 6,6 a 2  
Edition : 03.05.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 400 876 321AN  
Injection pump  
Pump designation : PES6A95D32ORS2684  
EP type number : 0 410 896 917  
Governor  
Governor design. : RSV325...1050AOC2178  
-2R  
Governor no. : 0 420 233 178

Customer-spec. information  
Customer : VALMET

Engine : 611D

1st version kW : 79.0  
Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60  
: (2.45...2.65)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

& maximum rack tra: 21.00  
Difference ° CS : 4.50...5.50

## BASIC SETTING

1st speed rpm : 1080

Rack travel in mm : 12.20...12.30

Del. quantity cm<sup>3</sup>/ : 11.9...12.1

100 s: (11.7...12.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 325.0

Rack travel in mm : 4.7...4.9

Del. quantity cm<sup>3</sup>/ : 1.3...1.7

100 s: (1.0...1.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 1.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1080

Del. quantity : 119.0...121.0

1000 : (117.0...123.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 77...85

Testing:

1st rack travel in: 11.20  
Speed rpm : 1120...1130  
3rd rack travel in: 4.00  
Speed rpm : 1160...1185  
4th rack travel in: 1310  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 7...15  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 4.2  
Speed rpm : 325  
Rack travel in mm : 4.70...4.90  
Rack travel in mm : 2.00  
Speed rpm : 310...370

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 12.20...12.30  
2nd speed rpm : 500  
Rack travel in m: 12.20...12.30

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 114.0...117.0  
1000 s: (111.5...119.5)  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 120.0...123.0  
1000 s: (117.5...125.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20  
Speed rpm : 1120...1130

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 325  
Rack travel in mm : 4.70...4.90  
Del.quantity cm<sup>3</sup>/ : 13.0...17.0  
1000 s: (10.5...19.5)

Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

APPLICATION :

Tractor (tractor engines)

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : FIA 5,9 c  
 Edition : 24.04.91  
 Replaces : 21.5.90  
 Test oil : ISO-4113

Combination no. : 0 400 876 349

Injection pump  
 Pump designation : PES6A90D410RS2757  
 EP type number : 0 410 896 086  
 Governor  
 Governor design. : RSV425...1000A1C2233  
 L  
 Governor no. : 0 420 232 496

Customer-spec. information  
 Customer : IVECO-FIAT

Engine : 8065.25.080

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35  
 : (2.20...2.40)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 1000

Rack travel in mm : 11.80...11.90

Del.quantity cm<sup>3</sup>/ : 9.0...9.1

100 s : (8.8...9.3)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

2nd speed rpm : 475.0

Rack travel in mm : 7.1...7.3

Del.quantity cm<sup>3</sup>/ : 1.0...1.6

100 s : (0.8...1.8)

Spread cm<sup>3</sup> : 0.2

100 s : (0.4)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

**FULL LOAD DELIV. AT FULL LOAD STOP**

**1st version**

Speed rpm : 1000

Aneroid pressure h: 800

Del.quantity : 90.0...91.0

1000 : (88.0...93.0)

Spread cm<sup>3</sup> : 3.00

1000 : (5.00)

**RATED SPEED**

**1st version**

Control lever

position degrees: 101...110

**Testing:**

1st rack travel in: 10.80

Speed rpm : 1040...1050

2nd rack travel in: 4.00

Speed rpm : 1090...1120

3rd rack travel in: 4.00

Speed rpm : 1140...1170  
4th rack travel in: 1240  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 77...85  
Setting point w/out bumper spring  
Speed rpm : 475  
Rack travel in mm : 6.7

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 475  
Rack travel in mm : 7.10...7.30  
Rack travel in mm : 2.00  
Speed rpm : 610...670

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 11.80...11.90  
2nd speed rpm : 500  
Rack travel in m: 11.80...12.00

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 800  
Rack travel mm : 11.80...11.90

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
Rack travel in m: 11.30...11.50  
2nd pressure hPa : 780  
Rack travel in m: 11.70...11.80

#### BREAKAWAY

#### 1st version

1mm rack travel less than  
full load rack tr: 10.80  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 85.0...95.0  
1000 s: (82.0...98.0)  
Rack travel in mm : 19.50...21.00

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#### Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 6,2 q 4  
 Edition : 19.10.90  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 400 876 369

Injection pump  
 Pump designation : PES6A95D32ORS2693Z  
 EP type number : 0 410 896 913  
 Governor  
 Governor design. : RSV300...1300ADC2248  
 R  
 Governor no. : 0 420 233 270

Customer spec. information  
 Customer : DAF

Engine : DNT 620

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.50...3.50

## BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 12.10...12.20

Del. quantity cm<sup>3</sup>/ : 8.8...8.9

100 s: (8.6...9.1)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del. quantity cm<sup>3</sup>/ : 0.7...1.1

108 s: (0.4...1.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 850

Aneroid pressure h: 700

Del. quantity : 88.5...89.5

1000 : (86.5...91.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 104...112

Testing:  
1st rack travel in: 10.80  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1410...1440  
3rd rack travel in: 4.00  
Speed rpm : 1440...1470  
4th rack travel in: 1595  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever  
position degrees: 75...83  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:  
Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 300  
Rack travel in mm : 6.30...6.50  
Rack travel in mm : 2.00  
Speed rpm : 580...640

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1290  
Rack travel in m: 11.70...11.90  
2nd speed rpm : 500  
Rack travel in m: 12.40...12.50  
4th speed rpm : 1020  
Rack travel in m: 12.20...12.40

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 12.10...12.20

Measurement  
Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 11.00...11.20  
2nd pressure hPa : 290  
Rack travel in m: 11.90...12.00  
3rd pressure hPa : 250  
Rack travel in m: 11.50...11.70

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 1290

Del.quantity cm<sup>3</sup>/ : 88.0...90.0  
1000 s: (85.5...92.5)  
Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 65.5...66.5  
1000 s: (63.5...68.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.80  
Speed rpm : 1340...1350

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.30...6.50  
Del.quantity cm<sup>3</sup>/ : 7.0...11.0  
1000 s: (4.5...13.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VAL 6,6 b
Edition : 24.04.91
Replaces : 25.1.91
Test oil : ISO-4113
Combination no. : 0 400 876 384
Injection pump
Pump designation : PES6A95D32ORS2806
EP type number : 0 410 896 898
Governor
Governor design. : RSV375...1125AOC2178
-8R
Governor no. : 0 420 233 280

Customer-spec. information
Customer : VALMET

Engine : 620D

1st version kw : 88.0
Rated speed : 2250

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60
: (2.45...2.65)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 9.00...9.10

Del. quantity cm3/ : 7.3...7.5

100 s: (7.1...7.7)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 4.3...4.5

Del. quantity cm3/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm3 : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 73.0...75.0

1000 : (71.0...77.0)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever  
position degrees: 85...93

Testing:  
1st rack travel in: 8.00  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
3rd rack travel in: 4.00  
Speed rpm : 1185...1215  
4th rack travel in: 1350  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever  
position degrees: 67...75  
Setting point w/out bumper spring  
Speed rpm : 375  
Rack travel in mm : 4.0

Testing:  
Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 375  
Rack travel in mm : 4.30...4.50  
Rack travel in mm : 2.00  
Speed rpm : 425...485

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 9.00...9.10  
2nd speed rpm : 500  
4th speed rpm : 980  
Rack travel in m: 9.30...9.40

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 57.0...60.0  
1000 s: (54.5...62.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8.00  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 195.0...205.0  
1000 s: (192.0...208.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 4.30...4.50  
Del. quantity cm<sup>3</sup>/ : 12.0...16.0  
1000 s: (9.5...18.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

#### APPLICATION

Tractor (tractor engines)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 1 g 50  
Edition : 26.04.91  
Replaces : 1.2.91  
Test oil : ISO-4113  
  
Combination no. : 0 400 876 387  
  
Injection pump  
Pump designation : PES6A95D41ORS2625  
EP type number : 0 410 896 926  
Governor  
Governor design. : RSV375...1200A5C2253  
-4L  
Governor no. : 0 420 232 560

Customer-spec. information  
Customer : KHD

Engine : BF6L913B

1st version kw : 125.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175  
^

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 1.90...2.00  
: (1.85...2.05)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.10...11.20

Del. quantity cm<sup>3</sup>/ : 8.5...8.6

100 s : (8.3...8.8)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 7.3...7.5

Del. quantity cm<sup>3</sup>/ : 1.1...1.7

100 s : (0.8...1.9)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 3.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Aneroid pressure h: 800

Del. quantity : 85.5...86.5

1000 : (83.5...88.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 94...102

Testing:

1st rack travel in: 10.10

Speed rpm : 1240...1250

2nd rack travel in: 4.00

Speed rpm : 1260...1290

3rd rack travel in: 4.00  
Speed rpm : 1280...1310  
4th rack travel in: 1440  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 61...69  
Setting point w/out bumper spring  
Speed rpm : 375  
Rack travel in mm : 5.5

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 375  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 435...495

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 11.10...11.20  
2nd speed rpm : 500  
Rack travel in m: 12.00...12.10  
4th speed rpm : 1030  
Rack travel in m: 10.40...10.60

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 800  
Rack travel mm : 12.00...12.10

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
Rack travel in m: 10.50...10.60  
2nd pressure hPa : 350  
Rack travel in m: 11.70...11.80  
3rd pressure hPa : 280  
Rack travel in m: 11.10...11.40

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 800  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 89.0...91.0  
1000 s: (86.5...93.5)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 55.0...57.0  
1000 s: (53.0...59.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.10  
Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)  
Rack travel in mm : 16.30...16.70

Remarks: : TX 150

#### APPLICATION

Tractor (tractor engines)

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : MB 14,7 c10  
 Edition : 26.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 838 711

Injection pump  
 Pump designation : PE8P110A320/3LS3842-3  
 EP type number : 0 411 818 724  
 Governor  
 Governor design. : RQ300/1050PA187-31  
 Governor no. : 0 421 801 553

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 203.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

A17

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 Phasing : 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 750

---

Rack travel in mm : 11.80...11.90

---

Del.quantity cm<sup>3</sup>/ : 10.4...10.6  
 100 s: (10.1...10.8)

---

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

2nd speed rpm : 300.0  
 Rack travel in mm : 8.2...8.5  
 Del.quantity cm<sup>3</sup>/ : 1.5...2.1  
 100 s: (1.2...2.3)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 650  
 Rack travel in mm : 13.60...14.40

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 750  
 Del.quantity : 104.0...106.0  
 1000 : (101.5...108.5)  
 Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

**RATED SPEED**

1st version  
 Setting point:  
 Speed rpm : 650  
 Rack travel in mm : 14.0

Testing:

1st rack travel in: 10.80  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1150...1180  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.9

Testing:  
Speed rpm : 200  
Minimum rack trave: 9.00  
Speed rpm : 300  
Rack travel in mm : 6.80...7.00  
Rack travel in mm : 2.00  
Speed rpm : 400...440

START CUT-OUT

Speed 1/min : 1 (0)

FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 118.0...122.0  
1000 s: (115.0...125.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (9.00)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.80  
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DAF 11,7 o1  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 846 568  
 Injection pump  
 Pump designation : PE6P110A32ORS529  
 EP type number : 0 411 816 179  
 Governor  
 Governor design. : RQ275/1000PA1012  
 Governor no. : 0 421 801 595

Customer-spec. information  
 Customer : DAF

Engine : LT 195 G

**TEST BENCH REQUIREMENTS**

Test oil inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder assembly : 0 681 343 009  
 Opening pressure, bar : 172...175  
 Test Lines : 1 680 750 015  
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27  
 Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 14.50...15.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BEGINNING OF DELIVERY DIFFERENCE**

betw. rack trav. m: 4.50...4.70  
 & maximum rack tra: 14.0...15.0  
 Difference ° CS : 2.00...4.00

**BASIC SETTING**

1st speed rpm : 600  
 Rack travel in mm : 15.00...15.10  
 Del. quantity cm<sup>3</sup>/ : 19.3...19.5  
 100 s: (19.0...19.7)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

2nd speed rpm : 300.0  
 Rack travel in mm : 7.0...7.2  
 Del. quantity cm<sup>3</sup>/ : 2.2...2.7  
 100 s: (1.9...2.9)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -2  
 Speed rpm : 600  
 Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 600  
 Aneroid pressure h: 1000  
 Del. quantity : 193.0...195.0  
 1000 : (190.5...197.5)  
 Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

**RATED SPEED**

1st version  
 Setting point:  
 Speed rpm : 600  
 Rack travel in mm : 20.0  
 Testing:  
 1st rack travel in: 13.50  
 Speed rpm : 1025...1040  
 2nd rack travel in: 4.00

Speed rpm : 1105...1135  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.1

#### Testing:

Speed rpm : 100  
Minimum rack travel: 10.50  
Speed rpm : 300  
Rack travel in mm : 7.00...7.20  
Rack travel in mm : 2.00  
Speed rpm : 350...390

#### TORQUE CONTROL

Dimension a mm : 0.30  
Torque control curve - 1st version  
1st speed rpm : 980  
Rack travel in m: 14.50...14.70  
2nd speed rpm : 600  
Rack travel in m: 15.60...15.80  
3rd speed rpm : 750  
Rack travel in m: 15.10...15.20  
4th speed rpm : 825  
Rack travel in m: 14.70...14.90

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 15.00...15.10

#### Measurement

Speed 1/min : 600  
1st pressure hPa : -  
Rack travel in m: 12.50...12.70  
2nd pressure hPa : 440  
Rack travel in m: 14.40...14.50  
3rd pressure hPa : 340  
Rack travel in m: 13.10...13.30

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 980  
Del.quantity cm<sup>3</sup>/ : 178.0...182.0  
1000 s: (175.0...185.0)  
Aneroid pressure h: -  
Speed rpm : 600

Del.quantity cm<sup>3</sup>/ : 132.0...134.0  
1000 s: (129.5...136.5)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.50  
Speed rpm : 1025...1040

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 300.0...340.0  
1000 s: (297.0...343.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 7.00...7.20  
Del.quantity cm<sup>3</sup>/ : 22.0...27.0  
1000 s: (19.5...29.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

#### Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : VOL 12,2 a1  
 Edition : 29.04.91  
 Replaces : 02.10.89  
 Test oil : ISO-4113

Combination no. : 0 401 846 826

Injection pump  
 Pump designation : PE6P120A32ORS3178  
 EP type number : 0 411 826 752  
 Governor  
 Governor design. : RQV250...1025PA657-10  
 Governor no. : 0 421 813 567

Customer-spec. information  
 Customer : VOLVO

Engine : TD122FS

1st version kW : 287.0  
 Rated speed : 2050

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

A21

Prestroke mm : 3.60...3.70  
 : (3.55...3.75)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 700

---

Rack travel in mm : 14.00...14.10

---

Del.quantity cm<sup>3</sup>/ : 25.2...25.4  
 100 s: (24.9...25.7)

---

Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 250.0  
 Rack travel in mm : 4.8...5.1  
 Del.quantity cm<sup>3</sup>/ : 1.8...2.3  
 100 s: (1.5...2.5)

Spread cm<sup>3</sup> : 0.5  
 100 s: (0.7)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 250  
 travel mm : 1.00...1.40

2nd speed rpm : 450  
 travel mm : 3.60...4.20

3rd speed rpm : 800  
 travel mm : 6.30...6.70

4th speed rpm : 1070  
 travel mm : 8.00...8.20

5th speed rpm : 1150  
 travel mm : 9.30...9.70

**GUIDE SLEEVE POSITION**  
 Control-lever position  
 Degree: -1  
 Speed rpm : 1090  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 700

Aneroid pressure h: 1200  
Del. quantity : 252.0...254.0  
1000 : (249.0...257.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control Lever  
position degrees: 61...69

#### Testing:

1st rack travel in: 13.00  
Speed rpm : 1055...1065  
2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control Lever  
position degrees: 6...14

#### Testing:

Speed rpm : 100  
Minimum rack travel: 6.40  
Speed rpm : 250  
Rack travel in mm : 4.80...5.10

#### CONSTANT REGULATION

Speed rpm : 250...400

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 14.00...14.10

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 120  
Rack travel in m: 10.20...10.30  
3rd pressure hPa : 810  
Rack travel in m: 13.30...13.70

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 700

Del. quantity cm<sup>3</sup>/ : 163.0...165.0  
1000 s: (160.0...168.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.00  
Speed rpm : 1055...1065

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 220.0...240.0  
1000 s: (216.0...244.0)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 4.80...5.10  
Del. quantity cm<sup>3</sup>/ : 18.0...23.0  
1000 s: (15.5...25.5)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.00)

#### Remarks:

Delivery-valve spring pre-tension =  
2.40...2.60 mm.  
Permissible alteration from 2.20...2.90  
mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,7 h3  
Edition : 24.04.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 401 846 931  
  
Injection pump  
Pump designation : PE6P120A32ORS3248Z  
EP type number : 0 411 826 798  
Governor  
Governor design. : RQV250...1000PA851-4  
Governor no. : 0 421 813 828

Customer-spec. information  
Customer : DAF

Engine : WS 222

1st version kW : 222.0  
Rated speed : 2000

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 4.20...4.30  
                  : (4.15...4.35)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 850  
Rack travel in mm : 11.80...11.90  
Del. quantity cm<sup>3</sup>/ : 18.9...19.1  
100 s : (18.6...19.4)  
Spread cm<sup>3</sup> : 0.5  
100 s : (0.9)

2nd speed rpm : 250.0  
Rack travel in mm : 6.6...6.8  
Del. quantity cm<sup>3</sup>/ : 1.4...2.0  
100 s : (1.1...2.3)  
Spread cm<sup>3</sup> : 0.8  
100 s : (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1045  
travel mm : 7.80...8.00  
2nd speed rpm : 250  
travel mm : 0.70...1.10  
3rd speed rpm : 400  
travel mm : 2.50...3.10  
4th speed rpm : 750  
travel mm : 4.80...5.20

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1100  
Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 850  
Aneroid pressure h: 1000  
Del. quantity : 189.0...191.0  
1000 : (186.0...194.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 10.80  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1120...1150  
4th rack travel in: 1250  
Speed rpm : 0.00...1.40

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 100  
Minimum rack trave: 7.50  
Speed rpm : 250  
Rack travel in mm : 5.90...6.10

CONSTANT REGULATION  
Speed rpm : 260...380

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 11.80...11.90

Measurement  
Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 11.10...11.32  
2nd pressure hPa : 230  
Rack travel in m: 11.40...11.50

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 164.0...166.0  
1000 s: (161.0...169.0)

BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 10.80  
Speed rpm : 1040...1050

LOW IDLE  
Speed rpm : 250  
Rack travel in mm : 5.90...6.10

Remarks:  
:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : DAF 8,2 d 1  
 Edition : 22.03.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 846 944  
 Injection pump  
 Pump designation : PE6P110A72ORS3257Z  
 EP type number : 0 411 816 779  
 Governor  
 Governor design. : RGV325...1200PA910-1  
 Governor no. : 0 421 813 880

Customer-spec. information  
 Customer : DAF

Engine : HS 206 G

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27  
 Prestroke mm : 3.70...3.80  
 : (3.65...3.85)  
 Rack travel in mm : 13.50...14.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BEGINNING OF DELIVERY DIFFERENCE**

betw. rack trav. m: 7.40...7.60  
 & maximum rack tra: 13.7...14.7  
 Difference ° CS : 1.75...3.25

**BASIC SETTING**

1st speed rpm : 1000  
 Rack travel in mm : 14.20...14.30  
 Del. quantity cm<sup>3</sup>/ : 14.3...14.5  
 100 s: (14.1...14.8)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

2nd speed rpm : 325.0  
 Rack travel in mm : 7.8...8.0  
 Del. quantity cm<sup>3</sup>/ : 1.4...1.9  
 100 s: (1.1...2.1)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1245  
 travel mm : 8.10...8.30  
 2nd speed rpm : 325  
 travel mm : 0.90...1.30  
 3rd speed rpm : 500  
 travel mm : 2.90...3.50  
 4th speed rpm : 800  
 travel mm : 4.60...5.00  
 5th speed rpm : 1500  
 travel mm : 11.00...12.00

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1240  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1000  
 Aneroid pressure h: 1000  
 Del. quantity : 143.5...145.5  
 1000 : (141.0...148.0)

Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

#### Testing:

1st rack travel in: 13.20  
Speed rpm : 1235...1250  
2nd rack travel in: 4.00  
Speed rpm : 1360...1390  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 80...88

#### Testing:

Speed rpm : 100  
Minimum rack travel: 7.90  
Speed rpm : 325  
Rack travel in mm : 6.30...6.50

#### CONSTANT REGULATION

Speed rpm : 340...460

#### Aneroid/Altitude Compensator Test

#### 1st version

##### Setting

Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.20...14.30

##### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 11.00...11.20  
2nd pressure hPa : 430  
Rack travel in m: 13.40...13.50  
3rd pressure hPa : 200  
Rack travel in m: 11.80...12.00

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 80.5...82.5  
1000 s: (78.0...85.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.20  
Speed rpm : 1235...1250

#### LOW IDLE

Speed rpm : 325  
Rack travel in mm : 6.30...6.50

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF S,2 c 1  
Edition : 22.03.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 401 846 945  
Injection pump  
Pump designation : PE6P110A720RS3257Z  
EP type number : 0 411 816 779  
Governor  
Governor design. : RQ325/1200PA913-2  
Governor no. : 0 421 801 539

Customer-spec. information  
Customer : DAF

Engine : HS 206 G

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.70...3.80  
: (3.65...3.85)

Rack travel in mm : 13.50...14.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 7.40...7.60  
& maximum rack tra: 13.7...14.7  
Difference ° CS : 1.75...3.25

## BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.20...14.30

Del.quantity cm<sup>3</sup>/ : 14.3...14.5

100 s: (14.1...14.8)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 325.0

Rack travel in mm : 7.8...8.0

Del.quantity cm<sup>3</sup>/ : 1.4...1.9

100 s: (1.1...2.1)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.20...16.40

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 143.5...145.5

1000 : (141.0...148.0)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 15.8

Testing:

1st rack travel in: 13.20

Speed rpm : 1235...1250

2nd rack travel in: 4.00

Speed rpm : 1325...1355  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 6.4

Testing:

Speed rpm : 100  
Minimum rack trave: 7.90  
Speed rpm : 325  
Rack travel in mm : 6.30...6.50  
Rack travel in mm : 2.00  
Speed rpm : 395...435

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 14.30...14.40  
2nd speed rpm : 1200  
Rack travel in m: 14.20...14.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.20...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 11.00...11.20  
2nd pressure hPa : 430  
Rack travel in m: 13.40...13.50  
3rd pressure hPa : 200  
Rack travel in m: 11.80...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 80.5...82.5  
1000 s: (78.0...85.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.20

Speed rpm : 1235...1250

LOW IDLE

Speed rpm : 325  
Rack travel in mm : 6.30...6.50

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : KHD 9,6 x  
Edition : 26.04.91  
Replaces : 1.2.91  
Test oil : ISO-4113

Combination no. : 0 401 848 792

Injection pump  
Pump designation : PE8P120A920/5LS3208  
EP type number : 0 411 828 721  
Governor  
Governor design. : RQ325/1150PA879  
Governor no. : 0 421 801 417

Customer-spec. information  
Customer : KHD

Engine : BF8L513CP

1st version kW : 294.0  
Rated speed : 2300

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 3.40...3.50  
                  : (3.35...3.55)  
Rack travel in mm : 15.00...19.00  
Firing order : 1- 8- 7- 2- 6- 5-  
                  4- 3

Phasing : 0-45-90-135-180-225-  
                  270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 1150

Rack travel in mm : 12.30...12.40

Del.quantity cm<sup>3</sup>/ : 18.9...19.1

100 s: (18.6...19.4)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

2nd speed rpm : 325.0

Rack travel in mm : 6.5...6.7

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.9

100 s: (1.3)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 700

Rack travel in mm : 14.70...16.30

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1150

Aneroid pressure h: 900

Del.quantity : 189.0...191.0

1000 : (186.0...194.0)

Spread cm<sup>3</sup> : 6.00

1000 : (10.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 700

Rack travel in mm : 15.5

Testing:

1st rack travel in: 11.30  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1260...1290  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 6.6

#### Testing:

Speed rpm : 100  
Minimum rack trave: 8.10  
Speed rpm : 325  
Rack travel in mm : 6.50...6.70  
Rack travel in mm : 2.00  
Speed rpm : 400...440

#### CONSTANT REGULATION

Speed rpm : 300...510

#### TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 12.30...12.40  
2nd speed rpm : 600  
Rack travel in m: 12.30...12.50

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 400  
Pressure hPa : 900  
Rack travel mm : 12.80...12.90

#### Measurement

Speed 1/min : 400

1st pressure hPa : -  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 450  
Rack travel in m: 11.00...11.10  
3rd pressure hPa : 590  
Rack travel in m: 12.00...12.30

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 400  
Del.quantity cm3/ : 104.0...106.0  
1000 s: (101.0...109.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.30  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 235.0...265.0  
1000 s: (230.0...270.0)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

#### APPLICATION

Rail car

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 d11  
 Edition : 19.03.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 848 793

Injection pump  
 Pump designation : PE8P110A32OLS3842  
 EP type number : 0 411 818 714  
 Governor  
 Governor design. : RQV300...1050PA884-10

Governer no. : 0 421 813 930

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 192.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 100...120

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

B03

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 : 4- 1

Phasing : 0-45-90-135-180-225-  
 Phasing : 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 1050  


---

 Rack travel in mm : 11.50...11.60  


---

 Del.quantity cm<sup>3</sup>/ : 11.7...11.9  
 100 s: (11.4...12.1)  


---

 Spread cm<sup>3</sup> : 0.4  


---

 100 s: (0.8)  


---

2nd speed rpm : 300.0  
 Rack travel in mm : 8.4...8.7  
 Del.quantity cm<sup>3</sup>/ : 1.5...2.1  
 100 s: (1.2...2.3)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.00...1.50  
 2nd speed rpm : 558  
 travel mm : 4.30...4.80  
 3rd speed rpm : 820  
 travel mm : 5.90...6.40  
 4th speed rpm : 1107  
 travel mm : 8.30...8.80  
 5th speed rpm : 1183  
 travel mm : 9.80...10.30

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1100  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 1050  
Del.quantity : 117.0...119.0  
1000 : (114.5...121.5)  
Spread cm3 : 4.00  
1000 : (8.00)

Del.quantity cm3/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

#### Testing:

1st rack travel in: 10.50  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1135...1165  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 86...94

#### Testing:

Speed rpm : 200  
Minimum rack travel: 10.50  
Speed rpm : 300  
Rack travel in mm : 8.40...8.70

#### CONSTANT REGULATION

Speed rpm : 300...450

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 600  
Del.quantity cm3/ : 98.0...104.0  
1000 s: (95.0...107.0)  
Spread cm3 : 6.00  
1000 s: (9.00)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.50  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100

B04

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 L 3  
 Edition : 19.03.91  
 Replaces : 18.2.91  
 Test oil : ISO-4113

Combination no. : 0 401 848 806

Injection pump  
 Pump designation : PE8P110A320LS3846-1  
 EP type number : 0 411 818 719  
 Governor  
 Governor design. : RQ300/1050PA187-28  
 Governor no. : 0 421 801 492

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 213.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 1050  


---

 Rack travel in mm : 11.20...11.30  


---

 Del.quantity cm3/ : 12.2...12.4  
 100 s: (11.9...12.6)  


---

 Spread cm3 : 0.8  
 100 s: (1.3)  


---

2nd speed rpm : 300.0  
 Rack travel in mm : 6.4...7.0  
 Del.quantity cm3/ : 1.6...2.2  
 100 s: (1.3...2.4)  
 Spread cm3 : 0.6  
 100 s: (1.1)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 650  
 Rack travel in mm : 13.10...13.90

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1050  
 Del.quantity : 122.0...124.0  
 1000 : (119.5...126.5)  
 Spread cm3 : 8.50  
 1000 : (13.00)

**RATED SPEED**

1st version  
 Setting point:  
 Speed rpm : 650  
 Rack travel in mm : 13.5

Testing:  
1st rack travel in: 10.20  
Speed rpm : 1080...1090  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1300  
Speed rpm : 0.00...2.00

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.7

Testing:  
Speed rpm : 200  
Minimum rack trave: 8.50  
Speed rpm : 300  
Rack travel in mm : 6.40...7.00  
Rack travel in mm : 2.00  
Speed rpm : 390...430

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600  
Del.quantity cm3/ : 119.0...125.0  
1000 s: (116.5...127.5)  
Spread cm3 : 11.00  
1000 s: (14.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.20  
Speed rpm : 1080...1090

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:  
:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : MB 14,7 d13  
 Edition : 26.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 848 811

Injection pump  
 Pump designation : PE8P110A320LS3842-2  
 EP type number : 0 411 818 722  
 Governor  
 Governor design. : RQV350...1050PA378-11

Governer no. : 0 421 813 714

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 213.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 Phasing : 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 1050  


---

 Rack travel in mm : 12.70...12.80  


---

 Del.quantity cm<sup>3</sup>/ : 13.7...13.9  
 100 s: (13.4...14.1)  


---

 Spread cm<sup>3</sup> : 0.4  


---

 100 s: (0.7)

2nd speed rpm : 350.0  
 Rack travel in mm : 7.9...8.5  
 Del.quantity cm<sup>3</sup>/ : 1.5...2.1  
 100 s: (1.2...2.3)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.50...1.70  
 2nd speed rpm : 800  
 travel mm : 4.90...5.30  
 3rd speed rpm : 1100  
 travel mm : 7.90...8.50  
 4th speed rpm : 1150  
 travel mm : 8.90...9.70

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1110  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1050

Del.quantity : 137.0...139.0  
1000 : (134.5...141.5)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.00)

Del.quantity cm<sup>3</sup>/ : 150.0...170.0  
1000 s: (146.0...174.0)

Remarks:

:

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 11.70  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 70...78

Testing:  
Speed rpm : 250  
Minimum rack trave: 9.50  
Speed rpm : 350  
Rack travel in mm : 7.90...8.50

CONSTANT REGULATION  
Speed rpm : 350...450

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 124.0...128.0  
1000 s: (121.0...131.0)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (8.00)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.70  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 c11  
 Edition : 26.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 848 817

Injection pump  
 Pump designation : PE8P110A320LS3842  
 EP type number : 0 411 818 714  
 Governor  
 Governor design. : RQ300/1050PA187-31  
 Governor no. : 0 421 801 553

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 195.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 750

Rack travel in mm : 11.80...11.90

Del.quantity cm<sup>3</sup>/ : 10.4...10.6

100 s: (10.1...10.8)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 8.2...8.5

Del.quantity cm<sup>3</sup>/ : 1.5...2.1

100 s: (1.2...2.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.60...14.40

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 750

Del.quantity : 104.0...106.0

1000 : (101.5...108.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 14.0

Testing:

1st rack travel in: 10.80

Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1150...1180  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.9

Testing:

Speed rpm : 200  
Minimum rack trave: 9.00  
Speed rpm : 300  
Rack travel in mm : 6.80...7.00  
Rack travel in mm : 2.00  
Speed rpm : 400...440

START CUT-OUT

Speed 1/min : 1 (0)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 118.0...122.0  
1000 s: (115.0...125.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (9.00)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80  
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 d12  
Edition : 24.04.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 401 848 818  
  
Injection pump  
Pump designation : PE8P110A320LS3842  
EP type number : 0 411 818 714  
Governor  
Governor design. : RGV300...1050PA884-8  
Governor no. : 0 421 813 889

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 195.0  
Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
                  : (3.95...4.15)  
Rack travel in mm : 9.00...12.00  
Firing order : 8- 7- 2- 6- 3- 5-  
                  4- 1

Phasing : 0-45-90-135-180-225-  
                  270-315  
Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 750  

---

Rack travel in mm : 11.80...11.90  

---

Del. quantity cm<sup>3</sup>/ : 10.4...10.6  
                  100 s: (10.1...10.8)  

---

Spread cm<sup>3</sup> : 0.4  

---

                  100 s: (0.7)

2nd speed rpm : 300.0  
Rack travel in mm : 8.2...8.5  
Del. quantity cm<sup>3</sup>/ : 1.5...2.1  
                  100 s: (1.2...2.3)  
Spread cm<sup>3</sup> : 0.4  
                  100 s: (0.7)

(B) Setting of injection pump  
with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
travel mm : 1.00...1.50  
2nd speed rpm : 608  
travel mm : 4.80...5.30  
3rd speed rpm : 820  
travel mm : 5.90...6.40  
4th speed rpm : 1107  
travel mm : 8.30...8.80  
5th speed rpm : 1280  
travel mm : 11.00...12.00

**GUIDE SLEEVE POSITION**

Control-lever position  
Degree: -1  
Speed rpm : 1130  
Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
Speed rpm : 750

Del.quantity : 104.0...106.0  
1000 : (101.5...108.5)  
Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125  
Rack travel in mm : 8

Testing:  
1st rack travel in: 10.80  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1150...1180  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack travel: 10.00  
Speed rpm : 300  
Rack travel in mm : 6.80...7.00

CONSTANT REGULATION  
Speed rpm : 300...450

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 118.0...122.0  
1000 s: (115.0...125.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (9.00)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.80  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : MB 14,7 c12  
 Edition : 26.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 848 819  
 Injection pump  
 Pump designation : PE8P110A320LS3842-1  
 EP type number : 0 411 818 716  
 Governor  
 Governor design. : RQ300/1050PA187-31  
 Governor no. : 0 421 801 553

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 203.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 750  
 Rack travel in mm : 11.80...11.90  
 Del.quantity cm<sup>3</sup>/ : 10.4...10.6  
 100 s: (10.1...10.8)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

2nd speed rpm : 300.0  
 Rack travel in mm : 8.2...8.5  
 Del.quantity cm<sup>3</sup>/ : 1.5...2.1  
 100 s: (1.2...2.3)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 650  
 Rack travel in mm : 13.60...14.40

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 750  
 Del.quantity : 104.0...106.0  
 1000 : (101.5...108.5)  
 Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

**RATED SPEED**

1st version  
 Setting point:  
 Speed rpm : 650  
 Rack travel in mm : 14.0

Testing:  
 1st rack travel in: 10.80

Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1150...1180  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.9

#### Testing:

Speed rpm : 200  
Minimum rack trave: 9.00  
Speed rpm : 300  
Rack travel in mm : 6.80...7.00  
Rack travel in mm : 2.00  
Speed rpm : 400...440

#### START CUT-OUT

Speed 1/min : 1 (0)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 118.0...122.0  
1000 s: (115.0...125.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (9.00)

#### RACK STOP ADJUSTMENT

Speed rpm : 600

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 10.80  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 16,0 e  
 Edition : 24.04.91  
 Replaces : 19.3.91  
 Test oil : ISO-4113  
 Combination no. : 0 401 849 752  
 Injection pump  
 Pump designation : PE10P110A920/5LS3276  
 EP type number : 0 411 819 712  
 Governor  
 Governor design. : RQV300...1150PA997  
 Governor no. : 0 421 813 927

Customer-spec. information  
 Customer : KHD

Engine : F 10L513

1st version kW : 223.0  
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175  
 Test Lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 3.10...3.20  
 : (3.05...3.25)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
 216-243-288-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1150  
 Rack travel in mm : 9.90...10.00  
 Del.quantity cm<sup>3</sup>/ : 10.8...11.0  
 100 s: (10.5...11.3)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

2nd speed rpm : 375.0  
 Rack travel in mm : 5.4...5.6  
 Del.quantity cm<sup>3</sup>/ : 1.2...1.7  
 100 s: (1.0...2.0)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 375  
 travel mm : 2.30...2.70  
 2nd speed rpm : 510  
 travel mm : 3.60...4.10  
 3rd speed rpm : 870  
 travel mm : 7.40...7.90  
 4th speed rpm : 1200  
 travel mm : 9.90...10.40  
 5th speed rpm : 1300  
 travel mm : 10.90...11.30

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1250  
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1150  
 Del.quantity : 108.0...110.0  
 1000 : (105.0...113.0)

Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

#### RATED SPEED

1st version  
Control lever  
position degrees: 98...106

#### Testing:

1st rack travel in: 8.90  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1270...1300  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 15...23

#### Testing:

Speed rpm : 100  
Minimum rack travel: 7.10  
Speed rpm : 375  
Rack travel in mm : 4.40...4.60

#### CONSTANT REGULATION

Speed rpm : 300...420

#### START CUT-OUT

Speed 1/min : 220 (0)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 700  
Del. quantity cm<sup>3</sup>/ : 100.0...104.0  
1000 s: (97.0...107.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (9.00)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 8.90  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 135.0...165.0  
1000 s: (131.0...169.0)

#### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 4.40...4.60

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 18,3 n 2  
 Edition : 26.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 849 753  
 Injection pump  
 Pump designation : PE10P110A320LS3844  
 EP type number : 0 411 819 710  
 Governor  
 Governor design. : RQ300/1050PA187-32  
 Governor no. : 0 421 801 554

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 443

1st version kW : 243.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 130...150

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 10- 9- 4- 1- 8- 7  
 - 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-  
 216-261-288-333  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

**BASIC SETTING**

1st speed rpm : 750

Rack travel in mm : 11.60...11.70

Del.quantity cm<sup>3</sup>/ : 10.2...10.4

100 s: (9.9...10.6)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0  
 Rack travel in mm : 8.0...8.3  
 Del.quantity cm<sup>3</sup>/ : 1.5...2.1  
 100 s: (1.2...2.3)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 600  
 Rack travel in mm : 13.60...14.40

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 750  
 Del.quantity : 102.0...104.0  
 1000 : (99.5...106.5)  
 Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

**RATED SPEED**

1st version  
 Setting point:  
 Speed rpm : 600  
 Rack travel in mm : 13.7

Testing:  
 1st rack travel in: 10.60

Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1150...1180  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.9

Testing:

Speed rpm : 200  
Minimum rack trave: 8.50  
Speed rpm : 300  
Rack travel in mm : 6.80...7.00  
Rack travel in mm : 2.00  
Speed rpm : 400...440

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 116.0...120.0  
1000 s: (113.0...123.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.60  
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DAF 11,7o17  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 876 295R  
 Injection pump  
 Pump designation : PE6P120A32ORS415-1R  
 EP type number : 0 411 826 123  
 Governor  
 Governor design. : RSV250...1000P5A508-  
 1  
 Governor no. : 0 421 833 194  
 Cust. part no. : 0763424  
 Customer-spec. information  
 Customer : DAF  
 Engine : DKXD 1160 ATi M

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 019  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,8  
 Test Lines : 1 680 750 067  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 850  
 Rack travel in mm : 11.10...11.20  
 Del.quantity cm3/ : 17.6...17.8  
 100 s: (17.3...18.1)  
 Spread cm3 : 0.5  
 100 s: (0.9)

2nd speed rpm : 250.0  
 Rack travel in mm : 6.7...6.9  
 Del.quantity cm3/ : 1.4...2.0  
 100 s: (1.1...2.3)  
 Spread cm3 : 0.8  
 100 s: (1.2)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.75

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 850  
 Aneroid pressure h: 700  
 Del.quantity : 176.0...178.0  
 1000 : (173.0...181.0)  
 Spread cm3 : 5.00  
 1000 : (9.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 10.00  
 Speed rpm : 1035...1045

2nd rack travel in: 4.00  
Speed rpm : 1115...1145  
3rd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1350  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 19...27  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Speed rpm : 250  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 630...690

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 11.40...11.50  
2nd speed rpm : 400  
Rack travel in m: 11.40...11.60  
3rd speed rpm : 300  
Rack travel in m: 11.70...12.20

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 11.10...11.20

#### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.30...10.50  
2nd pressure hPa : 210  
Rack travel in m: 10.70...10.90

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 140.0...142.0  
1000 s: (137.0...145.0)

#### BREAKAWAY

B20

1st version  
1mm rack travel less than

full load rack tr: 10.00  
Speed rpm : 1035...1045

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 305.0...345.0  
1000 s: (301.0...349.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.40...6.60

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DAF 11,6o18  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 876 295S

Injection pump  
 Pump designation : PE6P120A32ORS415-1S  
 EP type number : 0 411 826 123  
 Governor  
 Governor design. : RSV250...1000P5A508-1  
 Governor no. : 0 421 833 194

Cust. part no. : 0763415

Customer-spec. information  
 Customer : DAF

Engine : DKX 1160 ATi M

**TEST BENCH REQUIREMENTS**

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 850

---

Rack travel in mm : 12.10...12.20

---

Del.quantity cm<sup>3</sup>/ : 19.7...19.9  
 100 s: (19.4...20.2)

Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 250.0  
 Rack travel in mm : 6.7...6.9  
 Del.quantity cm<sup>3</sup>/ : 1.4...2.0  
 100 s: (1.1...2.3)  
 Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.75

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 850  
 Aneroid pressure h: 700  
 Del.quantity : 197.0...199.0  
 1000 : (194.0...202.0)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 11.00  
 Speed rpm : 1035...1045

2nd rack travel in: 4.00  
Speed rpm : 1115...1145  
3rd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1350  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever  
position degrees: 19...27  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.0

Testing:  
Speed rpm : 100  
Speed rpm : 250  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 630...690

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 12.30...12.40  
2nd speed rpm : 400  
Rack travel in m: 12.30...12.50  
3rd speed rpm : 300  
Rack travel in m: 12.60...13.10

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 12.10...12.20

Measurement  
Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.30...10.50  
2nd pressure hPa : 270  
Rack travel in m: 11.70...11.80  
3rd pressure hPa : 190  
Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 140.0...142.0  
1000 s: (137.0...145.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.00  
Speed rpm : 1035...1045

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 305.0...345.0  
1000 s: (301.0...349.0)  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.40...6.60

Remarks:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : DAF 11,6o19  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 876 295T

Injection pump  
 Pump designation : PE6P120A32ORS415-1T  
 EP type number : 0 411 826 123  
 Governor  
 Governor design. : RSV250...1000P5A508-1  
 Governor no. : 0 421 833 194

Cust. part no. : 0763410

Customer spec. information  
 Customer : DAF

Engine : DKVD 1160 ATi M

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 600

---

Rack travel in mm : 9.50...9.60

---

Del.quantity cm<sup>3</sup>/ : 12.3...12.5  
 100 s: (12.0...12.8)

---

Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 250.0  
 Rack travel in mm : 6.7...6.9  
 Del.quantity cm<sup>3</sup>/ : 1.4...2.0  
 100 s: (1.1...2.3)  
 Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.75

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 600  
 Del.quantity : 123.5...125.5  
 1000 : (120.5...128.5)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 7.90  
 Speed rpm : 1035...1045  
 2nd rack travel in: 4.00

Speed rpm : 1115...1145  
3rd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1350  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 19...27  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Speed rpm : 250  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 630...690

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 980  
Rack travel in m: 8.90...9.10  
2nd speed rpm : 600  
Rack travel in m: 9.70...9.80  
3rd speed rpm : 735  
Rack travel in m: 9.40...9.50

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 980  
Del. quantity cm<sup>3</sup>/ : 136.5...140.5  
1000 s: (133.5...143.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 7.90  
Speed rpm : 1035...1045

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 305.0...345.0  
1000 s: (301.0...349.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.40...6.60

Remarks:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,6020  
Edition : 24.04.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 401 876 295U  
  
Injection pump  
Pump designation : PE6P120A32ORS415-1U  
EP type number : 0 411 826 123  
Governor  
Governor design. : RSV250...1000P5A508-  
1  
Governor no. : 0 421 833 194  
  
Cust. part no. : 0763405  
  
Customer-spec. information  
Customer : DAF  
  
Engine : DKV 1160 ATi M

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
  
Overflow valve : 1 417 413 025  
  
Inlet press., bar : 1.50  
  
Test nozzle holder  
assembly : 1 688 901 019  
  
Opening  
pressure, bar : 207...210  
  
Orifice plate  
diameter mm : 0,8  
  
Test lines : 1 680 750 067  
  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000  
  
(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 600  

---

Rack travel in mm : 10.30...10.40  

---

Del.quantity cm<sup>3</sup>/ : 14.2...14.4  
100 s : (13.9...14.7)  

---

Spread cm<sup>3</sup> : 0.5  
100 s : (0.9)  

---

2nd speed rpm : 250.0  
Rack travel in mm : 6.7...6.9  
Del.quantity cm<sup>3</sup>/ : 1.4...2.0  
100 s : (1.1...2.3)  
Spread cm<sup>3</sup> : 0.8  
100 s : (1.2)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 4.75

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Del.quantity : 142.0...144.0  
1000 : (139.0...147.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

## RATED SPEED

1st version  
Control Lever  
position degrees: ?

Testing:  
1st rack travel in: 9.10  
Speed rpm : 1035...1045  
2nd rack travel in: 4.00

Speed rpm : 1115...1145  
3rd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1350  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 19...27  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Speed rpm : 250  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 630...690

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 980  
Rack travel in m: 10.10...10.30  
2nd speed rpm : 600  
Rack travel in m: 10.60...10.70  
3rd speed rpm : 735  
Rack travel in m: 10.40...10.50

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 980  
Del.quantity cm<sup>3</sup>/ : 157.0...161.0  
1000 s: (154.0...164.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.10  
Speed rpm : 1035...1045

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 305.0...345.0  
1000 s: (301.0...349.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.40...6.60

Remarks:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : DAF 11,6o21  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 876 296N  
 Injection pump  
 Pump designation : PE6P120A32ORS415-1N  
 EP type number : 0 411 826 123  
 Governor  
 Governor design. : RSV250...1100P5A508-  
 2  
 Governor no. : 0 421 833 195  
 Cust. part no. : 0763409  
 Customer-spec. information  
 Customer : DAF  
 Engine : DKVD 1160 ATi M

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 019  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,8  
 Test Lines : 1 680 750 067  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.30 (0.75)

**BASIC SETTING**

1st speed rpm : 600  
 Rack travel in mm : 10.20...10.30  
 Del.quantity cm<sup>3</sup>/ : 13.9...14.1  
 100 s: (13.6...14.4)  
 Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 250.0  
 Rack travel in mm : 6.7...6.9  
 Del.quantity cm<sup>3</sup>/ : 1.4...2.0  
 100 s: (1.1...2.3)  
 Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.75

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 600  
 Aneroid pressure h: 700  
 Del.quantity : 139.5...141.5  
 1000 : (136.5...144.5)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 8.40  
 Speed rpm : 1135...1145

2nd rack travel in: 4.00  
Speed rpm : 1200...1230  
3rd rack travel in: 4.00  
Speed rpm : 1270...1300  
4th rack travel in: 1430  
Speed rpm : 0.30...1.40

Speed rpm : 250  
Rack travel in mm : 6.40...6.60

Remarks: :

LOW IDLE 1  
Control lever  
position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.0

Testing:  
Speed rpm : 100  
Speed rpm : 250  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 630...690

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 980  
Rack travel in m: 9.40...9.60  
2nd speed rpm : 600  
Rack travel in m: 10.50...10.60  
3rd speed rpm : 700  
Rack travel in m: 10.20...10.30  
4th speed rpm : 800  
Rack travel in m: 9.80...10.00

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 980  
Del. quantity cm<sup>3</sup>/ : 144.5...148.5  
1000 s: (141.5...151.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8.40  
Speed rpm : 1135...1145

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 305.0...345.0  
1000 s: (301.0...349.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

BOSCH NJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6o22  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 876 296P  
 Injection pump  
 Pump designation : PE6P120A32ORS415-1P  
 EP type number : 0 411 826 123  
 Governor  
 Governor design. : RSV250...1100P5A508-  
 2  
 Governor no. : 0 421 833 195  
 Cust. part no. : 0763404  
 Customer-spec. information  
 Customer : DAF  
 Engine : DKV 1160 ATi M

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 019  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,8  
 Test lines : 1 680 750 067  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.30 (0.75)

BASIC SETTING

1st speed rpm : 600  
 Rack travel in mm : 11.40...11.50  
 Del.quantity cm3/ : 16.7...16.9  
 100 s : (16.4...17.2)  
 Spread cm3 : 0.5  
 100 s : (0.9)

2nd speed rpm : 250.0  
 Rack travel in mm : 6.7...6.9  
 Del.quantity cm3/ : 1.4...2.0  
 100 s : (1.1...2.3)  
 Spread cm3 : 0.8  
 100 s : (1.2)

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 600  
 Aneroid pressure h: 700  
 Del.quantity : 167.0...169.0  
 1000 : (164.0...172.0)  
 Spread cm3 : 5.00  
 1000 : (9.00)

RATED SPEED

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 9.20  
 Speed rpm : 1135...1145

2nd rack travel in: 4.00  
Speed rpm : 1200...1230  
3rd rack travel in: 4.00  
Speed rpm : 1270...1300  
4th rack travel in: 1430  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.0

Testing:

Speed rpm : 100  
Speed rpm : 250  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 630...690

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 980  
Rack travel in m: 10.20...10.40  
2nd speed rpm : 600  
Rack travel in m: 11.70...11.80  
3rd speed rpm : 725  
Rack travel in m: 11.00...11.20  
4th speed rpm : 800  
Rack travel in m: 10.50...10.70

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 11.40...11.50

Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.30...10.50  
2nd pressure hPa : 380  
Rack travel in m: 11.10...11.20  
3rd pressure hPa : 350  
Rack travel in m: 10.60...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 700  
Speed rpm : 980  
Del.quantity cm3/ : 158.0...162.0  
1000 s: (155.0...165.0)

Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm3/ : 140.0...142.0  
1000 s: (137.0...145.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.20  
Speed rpm : 1135...1145

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 305.0...345.0  
1000 s: (301.0...349.0)  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.40...6.60

Remarks:

:



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,6t30  
Edition : 24.04.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 401 876 297F  
  
Injection pump  
Pump designation : PE6P110A32ORS385-1F  
EP type number : 0 411 816 146  
Governor  
Governor design. : RSV250...750P7A507  
Governor no. : 0 421 833 185

Cust. part no. : 0763398

Customer-spec. information  
Customer : DAF

Engine : DK 1160 A(1500)

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
                  : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.00...11.20

Del.quantity cm<sup>3</sup>/ : 13.8...14.0

100 s : (13.6...14.3)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.8...7.0

Del.quantity cm<sup>3</sup>/ : 2.5...3.3

100 s : (2.2...3.5)

Spread cm<sup>3</sup> : 0.4

100 s : (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 138.5...140.5

1000 : (136.0...143.0)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 10.00

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...795

4th rack travel in: 950

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 65...73  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.9  
Speed rpm : 250  
Rack travel in mm : 6.80...7.00  
Rack travel in mm : 2.00  
Speed rpm : 265...325

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.00  
Speed rpm : 750...755

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.80...7.00  
Del.quantity cm<sup>3</sup>/ : 25.0...33.0  
1000 s: (22.5...35.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

Remarks:  
:

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,6t31  
Edition : 24.04.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 401 876 297J

Injection pump  
Pump designation : PE6P110A32ORS385-1J  
EP type number : 0 411 816 146  
Governor  
Governor design. : RSV250...750P7A507  
Governor no. : 0 421 833 185

Cust. part no. : 0376290

Customer-spec. information  
Customer : DAF

Engine : DKTD 1160(1500)

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
                  : (2.75...2.95)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.20...11.40

Del. quantity cm<sup>3</sup>/ : 14.1...14.3

100 s: (13.8...14.5)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.8...7.0

Del. quantity cm<sup>3</sup>/ : 2.5...3.3

100 s: (2.2...3.5)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del. quantity : 141.0...143.0

1000 : (138.5...145.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 10.20

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...795

4th rack travel in: 950

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.9  
Speed rpm : 250  
Rack travel in mm : 6.80...7.00  
Rack travel in mm : 2.00  
Speed rpm : 265...325

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.20  
Speed rpm : 750...755

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.80...7.00  
Del.quantity cm<sup>3</sup>/ : 25.0...33.0  
1000 s: (22.5...35.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

Remarks:

:

APPLICATION

Generator

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,6t32  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 876 297U

Injection pump  
 Pump designation : PE6P110A320RS385-1U  
 EP type number : 0 411 816 146  
 Governor  
 Governor design. : RSV250...750P7A507  
 Governor no. : 0 421 833 185

Cust. part no. : 0290317

Customer-spec. information  
 Customer : DAF

Engine : DKA 1160(1500)

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.10...11.30

Del.quantity cm<sup>3</sup>/ : 14.0...14.2

100 s: (13.8...14.5)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.8...7.0

Del.quantity cm<sup>3</sup>/ : 2.5...3.3

100 s: (2.2...3.5)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 140.5...142.5

1000 : (138.0...145.0)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

## RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 10.10

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...795

4th rack travel in: 950

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 65...73

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.9

Speed rpm : 250

Rack travel in mm : 6.80...7.00

Rack travel in mm : 2.00

Speed rpm : 265...325

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10

Speed rpm : 750...795

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.80...7.00

Del.quantity cm<sup>3</sup>/ : 25.0...33.0

1000 s: (22.5...35.5)

Spread cm<sup>3</sup> : 4.50

1000 s: (7.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6t23
Edition : 24.04.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 401 876 297Y
Injection pump
Pump designation : PE6P110A320RS385-1Y
EP type number : 0 411 816 146
Governor
Governor design. : RSV250...750P7A507
Governor no. : 0 421 833 185

Cust. part no. : 0290321

Customer-spec. information
Customer : DAF

Engine : DKTD 1160(1500)

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90
: (2.75...2.95)

Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 11.80...12.00

Del.quantity cm3/ : 15.2...15.4

100 s: (14.9...15.6)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.8...7.0

Del.quantity cm3/ : 2.5...3.3

100 s: (2.2...3.5)

Spread cm3 : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 152.0...154.0

1000 : (149.5...156.5)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 90...98

Testing:

1st rack travel in: 10.80

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 780...795

4th rack travel in: 950

Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever

position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.9  
Speed rpm : 250  
Rack travel in mm : 6.80...7.00  
Rack travel in mm : 2.00  
Speed rpm : 265...325

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80  
Speed rpm : 750...755

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.80...7.00  
Del.quantity cm<sup>3</sup>/ : 25.0...33.0  
1000 s: (22.5...35.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

Remarks:

:

APPLICATION

Generator



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DAF 11,6t34  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 876 298Z  
 Injection pump  
 Pump designation : PE6P120A320RS385-2Z  
 EP type number : 0 411 826 132  
 Governor  
 Governor design. : RSV250...750P7A507  
 Governor no. : 0 421 833 185

Cust. part no. : 0387874

Customer-spec. information  
 Customer : DAF

Engine : DKX1160ATi(1500)

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 019  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,8  
 Test Lines : 1 680 750 067  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 700  
 Rack travel in mm : 10.50...10.60  
 Del.quantity cm<sup>3</sup>/ : 20.7...20.9  
 100 s : (20.4...21.2)  
 Spread cm<sup>3</sup> : 0.5  
 100 s : (0.9)

2nd speed rpm : 250.0  
 Rack travel in mm : 4.9...5.1  
 Del.quantity cm<sup>3</sup>/ : 1.4...2.0  
 100 s : (1.1...2.3)  
 Spread cm<sup>3</sup> : 0.8  
 100 s : (1.2)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 3.75

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 700  
 Del.quantity : 207.5...209.5  
 1000 : (204.5...212.5)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: 90...98

Testing:  
 1st rack travel in: 9.50  
 Speed rpm : 750...755  
 2nd rack travel in: 4.00

Speed rpm : 780...795  
4th rack travel in: 950  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 63...71  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 5.0  
Speed rpm : 250  
Rack travel in mm : 4.90...5.10  
Rack travel in mm : 2.00  
Speed rpm : 235...295

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.50  
Speed rpm : 750...755

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 4.90...5.10  
Del.quantity cm3/ : 14.0...20.0  
1000 s: (11.0...23.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,8 u8  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 876 301Z

Injection pump  
 Pump designation : PE6P110A720RS441Z  
 EP type number : 0 411 816 148  
 Governor  
 Governor design. : RSV250...1200P5A509  
 Governor no. : 0 421 833 190

Cust. part no. : 0395173

Customer-spec. information  
 Customer : DAF

Engine : DHS 825

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 11.90...12.00

Del. quantity cm<sup>3</sup>/ : 12.8...13.0

100 s: (12.6...13.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 5.0...5.2

Del. quantity cm<sup>3</sup>/ : 0.7...1.2

100 s: (0.4...1.4)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 700

Del. quantity : 128.5...130.5

1000 : (126.0...133.0)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 50...58

Testing:

1st rack travel in: 10.90

Speed rpm : 1220...1230

2nd rack travel in: 4.00

Speed rpm : 1300...1330

3rd rack travel in: 4.00

Speed rpm : 1330...1360

4th rack travel in: 1500  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 18...26  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 4.6  
Speed rpm : 250  
Rack travel in mm : 5.00...5.20  
Rack travel in mm : 2.00  
Speed rpm : 560...620

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 12.10...12.20  
2nd speed rpm : 400  
Rack travel in m: 12.10...12.30  
3rd speed rpm : 300  
Rack travel in m: 12.30...12.80

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 11.90...12.00

#### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.10...10.30  
2nd pressure hPa : 360  
Rack travel in m: 11.40...11.50  
3rd pressure hPa : 280  
Rack travel in m: 10.60...11.00

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 86.5...88.5  
1000 s: (84.0...91.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than  
full load rack tr: 10.90  
Speed rpm : 1220...1230

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 245.0...285.0  
1000 s: (241.0...289.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.00...5.20  
Del.quantity cm<sup>3</sup>/ : 7.0...12.0  
1000 s: (4.5...14.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DAF 11,6 w2  
Edition : 24.04.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 401 876 303W  
Injection pump  
Pump designation : PE6P100A32ORS384-1W  
EP type number : 0 411 806 189  
Governor  
Governor design. : RSV250...1100P5A510  
Governor no. : 0 421 833 191

Cust. part no. : 0763400

Customer-spec. information  
Customer : DAF

Engine : DK 1160 M

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30  
                  : (3.15...3.35)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 10.90...11.00

Del.quantity cm<sup>3</sup>/ : 10.0...10.2

100 s : (9.8...10.4)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.2...7.4

Del.quantity cm<sup>3</sup>/ : 1.2...1.6

100 s : (0.9...1.8)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Del.quantity : 100.0...102.0

1000 : (98.0...104.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 96...104

Testing:

1st rack travel in: 9.90

Speed rpm : 1125...1135

2nd rack travel in: 4.00

Speed rpm : 1175...1205

3rd rack travel in: 4.00

Speed rpm : 1260...1290

4th rack travel in: 1400

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 67...75

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.8

Speed rpm : 250

Rack travel in mm : 7.20...7.40

Rack travel in mm : 2.00

Speed rpm : 700...760

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 10.90...11.00

2nd speed rpm : 400

Rack travel in m: 11.10...11.20

3rd speed rpm : 300

Rack travel in m: 11.30...11.80

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90

Speed rpm : 1125...1135

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 195.0...235.0

1000 s: (191.0...239.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 7.20...7.40

Del.quantity cm<sup>3</sup>/ : 12.0...16.0

1000 s: (9.5...18.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.50)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : DAF 11,6 w3  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 876 303X

Injection pump  
 Pump designation : PE6P100A320RS384-1X  
 EP type number : 0 411 806 189  
 Governor  
 Governor design. : RSV250...1100P5A510  
 Governor no. : 0 421 833 191

Cust. part no. : 0763399

Customer-spec. information  
 Customer : DAF

Engine : DK 1160 M

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness : 6.00X1.50X600  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30  
 : (3.15...3.35)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 850

Rack travel in mm : 10.30...10.40

Del.quantity cm<sup>3</sup>/ : 9.0...9.2

100 s: (8.8...9.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 7.2...7.4

Del.quantity cm<sup>3</sup>/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 850

Del.quantity : 90.0...92.0

1000 : (88.0...94.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

**RATED SPEED**

1st version

Control lever

position degrees: 91...99

Testing:

1st rack travel in: 9.30

Speed rpm : 1025...1035

2nd rack travel in: 4.00

Speed rpm : 1075...1105

3rd rack travel in: 4.00

Speed rpm : 1160...1190

4th rack travel in: 1300

Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 67...75

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.8

Speed rpm : 250

Rack travel in mm : 7.20...7.40

Rack travel in mm : 2.00

Speed rpm : 700...760

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 850

Rack travel in m: 10.30...10.40

2nd speed rpm : 400

Rack travel in m: 10.50...10.60

3rd speed rpm : 300

Rack travel in m: 10.70...11.20

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.30

Speed rpm : 1025...1035

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 195.0...235.0

1000 s: (191.0...239.0)

Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250

Rack travel in mm : 7.20...7.40

Del.quantity cm<sup>3</sup>/ : 12.0...16.0

1000 s: (9.5...18.5)

Spread cm<sup>3</sup> : 3.50

1000 s: (5.50)

Remarks:



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6k20  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 876 308P

Injection pump  
 Pump designation : PE6P110A32ORS372-1P  
 EP type number : 0 411 816 145  
 Governor  
 Governor design. : RSV250...1100P5A508-3  
 Governor no. : 0 421 833 192

Cust. part no. : 0376298

Customer-spec. information  
 Customer : DAF

Engine : DKTD 1160 M

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.30...10.40

Del.quantity cm<sup>3</sup>/ : 10.2...10.4  
 100 s: (9.9...10.6)

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

2nd speed rpm : 250.0  
 Rack travel in mm : 7.0...7.2  
 Del.quantity cm<sup>3</sup>/ : 0.9...1.4  
 100 s: (0.7...1.7)

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 850  
 Del.quantity : 102.0...104.0  
 1000 : (99.5...106.5)

Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

RATED SPEED

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 9.30  
 Speed rpm : 1020...1030

2nd rack travel in: 4.00  
 Speed rpm : 1070...1100

3rd rack travel in: 4.00  
 Speed rpm : 1145...1175

4th rack travel in: 1350  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: ?  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.6  
Speed rpm : 250  
Rack travel in mm : 7.00...7.20  
Rack travel in mm : 2.00  
Speed rpm : 710...770

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 10.50...10.60  
2nd speed rpm : 400  
Rack travel in m: 10.50...10.70  
3rd speed rpm : 300  
Rack travel in m: 10.80...11.30

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.30  
Speed rpm : 1020...1030

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 245.0...285.0  
1000 s: (241.0...289.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 7.00...7.20  
Del.quantity cm<sup>3</sup>/ : 9.5...14.5  
1000 s: (7.0...17.0)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DAF 11,6k21  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 876 308R

Injection pump  
 Pump designation : PE6P110A32ORS372-1R  
 EP type number : 0 411 816 145  
 Governor  
 Governor design. : RSV250...1100P5A508-  
 3  
 Governor no. : 0 421 833 192

Cust. part no. : 0376302

Customer spec. information  
 Customer : DAF

Engine : DKTD 1160 M

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 850

---

Rack travel in mm : 11.00...11.10

---

Del. quantity cm<sup>3</sup>/ : 11.7...11.9  
 100 s: (11.4...12.1)

---

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

---

2nd speed rpm : 250.0  
 Rack travel in mm : 7.0...7.2  
 Del. quantity cm<sup>3</sup>/ : 0.9...1.4  
 100 s: (0.7...1.7)

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.25

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 850  
 Del. quantity : 117.0...119.0  
 1000 : (114.5...121.5)

Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 10.00  
 Speed rpm : 1120...1130

2nd rack travel in: 4.00  
 Speed rpm : 1185...1215

3rd rack travel in: 4.00  
 Speed rpm : 1260...1290

4th rack travel in: 1450  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: ?  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.6  
Speed rpm : 250  
Rack travel in mm : 7.00...7.20  
Rack travel in mm : 2.00  
Speed rpm : 710...770

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 11.20...11.30  
2nd speed rpm : 400  
Rack travel in m: 11.20...11.40  
3rd speed rpm : 300  
Rack travel in m: 11.40...11.90

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.00  
Speed rpm : 1120...1130

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 245.0...285.0  
1000 s: (241.0...289.0)  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 7.00...7.20  
Del.quantity cm3/ : 9.5...14.5  
1000 s: (7.0...17.0)  
Spread cm3 : 4.50  
1000 s: (7.50)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6k22  
Edition : 24.04.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 401 876 308T

Injection pump  
Pump designation : PE6P110A32ORS372-1T  
EP type number : 0 411 816 145  
Governor  
Governor design. : RSV250...1100P5A508-3  
Governor no. : 0 421 833 192

Cust. part no. : 0369662

Customer-spec. information  
Customer : DAF

Engine : DKT 1160 M

TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve  
: 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00

C23

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 11.70...11.80

Del.quantity cm<sup>3</sup>/ : 13.1...13.3  
100 s: (12.8...13.5)

Spread cm<sup>3</sup> : 0.4  
100 s: (0.7)

2nd speed rpm : 250.0  
Rack travel in mm : 6.6...6.8  
Del.quantity cm<sup>3</sup>/ : 0.7...1.2  
100 s: (0.4...1.4)

Spread cm<sup>3</sup> : 0.4  
100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 4.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 850  
Aneroid pressure h: 700  
Del.quantity : 131.0...133.0  
1000 : (128.5...135.5)

Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

RATED SPEED

1st version  
Control lever  
position degrees: ?

Testing:  
1st rack travel in: 10.70  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1050...1080  
3rd rack travel in: 4.00

Speed rpm : 1125...1155  
4th rack travel in: 1275  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 17...25  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.2  
Speed rpm : 250  
Rack travel in mm : 6.60...6.80  
Rack travel in mm : 2.00  
Speed rpm : 640...700

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 11.90...12.00  
2nd speed rpm : 400  
Rack travel in m: 11.90...12.10  
3rd speed rpm : 300  
Rack travel in m: 12.10...12.60

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 11.70...11.80

#### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 11.40...11.50  
2nd pressure hPa : 260  
Rack travel in m: 11.50...11.70

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 135.0...137.0  
1000 s: (132.5...139.5)

#### BREAKAWAY

#### 1st version

1mm rack travel less than  
full load rack tr: 10.70  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 245.0...285.0  
1000 s: (241.0...289.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.60...6.80  
Del.quantity cm<sup>3</sup>/ : 7.0...12.0  
1000 s: (4.5...14.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DAF 11,6k23  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 876 308U

Injection pump  
 Pump designation : PE6P110A32ORS372-1U  
 EP type number : 0 411 816 145  
 Governor  
 Governor design. : RSV250...1100P5A508-  
 3  
 Governor no. : 0 421 833 192

Cust. part no. : 0369660

Customer-spec. information  
 Customer : DAF

Engine : DKA 1160 M

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42 A

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 850

Rack travel in mm : 12.10...12.20

Del. quantity cm<sup>3</sup>/ : 13.8...14.0  
 100 s: (13.5...14.2)

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

2nd speed rpm : 250.0  
 Rack travel in mm : 6.6...6.8  
 Del. quantity cm<sup>3</sup>/ : 0.7...1.2  
 100 s: (0.4...1.4)

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.25

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 850  
 Del. quantity : 138.0...140.0  
 1000 : (135.5...142.5)

Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

**RATED SPEED**

1st version  
 Testing:  
 1st rack travel in: 11.10  
 Speed rpm : 1140...1150  
 2nd rack travel in: 4.00  
 Speed rpm : 1200...1230  
 3rd rack travel in: 4.00  
 Speed rpm : 1275...1305  
 4th rack travel in: 1425  
 Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever  
position degrees: 17...25  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.2  
Speed rpm : 250  
Rack travel in mm : 6.60...6.80  
Rack travel in mm : 2.00  
Speed rpm : 640...700

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 12.30...12.40  
2nd speed rpm : 400  
Rack travel in m: 12.30...12.50  
3rd speed rpm : 300  
Rack travel in m: 12.50...13.00

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.10  
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 245.0...285.0  
1000 s: (241.0...289.0)  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.60...6.80  
Del.quantity cm<sup>3</sup>/ : 7.0...12.0  
1000 s: (4.5...14.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

Remarks:

:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DAF 11,6k24  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 876 308V

Injection pump  
 Pump designation : PE6P110A32GRS372-1V  
 EP type number : 0 411 816 145  
 Governor  
 Governor design. : RSV250...1100P5A508-  
 3  
 Governor no. : 0 421 833 192

Cust. part no. : 0369659

Customer-spec. information  
 Customer : DAF

Engine : DKA 1160 M

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 850

---

Rack travel in mm : 11.80...11.90

---

Del.quantity cm<sup>3</sup>/ : 13.2...13.4

---

100 s: (12.9...13.6)

---

Spread cm<sup>3</sup> : 0.4

---

100 s: (0.7)

---

2nd speed rpm : 250.0

Rack travel in mm : 6.6...6.8

Del.quantity cm<sup>3</sup>/ : 0.7...1.2

100 s: (0.4...1.4)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.25

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 850

Del.quantity : 132.0...134.0

1000 : (129.5...136.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: ?

Testing:

1st rack travel in: 10.80  
 Speed rpm : 990...1000

2nd rack travel in: 4.00  
 Speed rpm : 1050...1080

3rd rack travel in: 4.00  
 Speed rpm : 1125...1155

4th rack travel in: 1275  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 17...25  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.2  
Speed rpm : 250  
Rack travel in mm : 6.60...6.80  
Rack travel in mm : 2.00  
Speed rpm : 640...700

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 12.00...12.10  
2nd speed rpm : 400  
Rack travel in m: 12.00...12.20  
3rd speed rpm : 300  
Rack travel in m: 12.20...12.70

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.80  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 245.0...285.0  
1000 s: (241.0...289.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.60...6.80  
Del.quantity cm<sup>3</sup>/ : 7.0...12.0  
1000 s: (4.5...14.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

Remarks:  
:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DAF 11,6k25  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 876 308W

Injection pump  
 Pump designation : PE6P110A32ORS372-1W  
 EP type number : 0 411 816 145  
 Governor  
 Governor design. : RSV250...1100P5A508-  
 3

Governer no. : 0 421 833 192

Cust. part no. : 0369658

Customer-spec. information  
 Customer : DAF

Engine : DK 1160 M

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

D01

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 850

Rack travel in mm : 10.50...10.60

Del. quantity cm<sup>3</sup>/ : 10.4...10.6

100 s: (10.2...10.9)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.6...6.8

Del. quantity cm<sup>3</sup>/ : 0.7...1.2

100 s: (0.4...1.4)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.25

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 850

Del. quantity : 104.5...106.5

1000 : (102.0...109.0)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

**RATED SPEED**

1st version

Control lever

position degrees: ?

Testing:

1st rack travel in: 9.50

Speed rpm : 990...1000

2nd rack travel in: 4.00

Speed rpm : 1050...1080

3rd rack travel in: 4.00

Speed rpm : 1125...1155

4th rack travel in: 1275  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 17...25  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.2  
Speed rpm : 250  
Rack travel in mm : 6.60...6.80  
Rack travel in mm : 2.00  
Speed rpm : 640...700

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 10.70...10.80  
2nd speed rpm : 400  
Rack travel in m: 10.70...10.90  
3rd speed rpm : 300  
Rack travel in m: 10.90...11.40

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.50  
Speed rpm : 990...1000

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 245.0...285.0  
1000 s: (241.0...289.0)  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.60...6.80  
Del.quantity cm3/ : 7.0...12.0  
1000 s: (4.5...14.5)  
Spread cm3 : 4.50  
1000 s: (7.50)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DAF 11,6k26  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 876 308Y

Injection pump  
 Pump designation : PE6P110A32ORS372-1Y  
 EP type number : 0 411 816 145  
 Governor  
 Governor design. : RSV250...1100P5A508-3  
 Governor no. : 0 421 833 192

Cust. part no. : 0290286

Customer-spec. information  
 Customer : DAF

Engine : DKA 1160

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

D03

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 850

---

Rack travel in mm : 11.10...11.20

---

Del.quantity cm<sup>3</sup>/ : 11.4...11.6  
 100 s: (11.2...11.9)

---

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

---

2nd speed rpm : 250.0  
 Rack travel in mm : 6.6...6.8  
 Del.quantity cm<sup>3</sup>/ : 0.7...1.2  
 100 s: (0.4...1.4)

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.25

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 850  
 Del.quantity : 114.5...116.5  
 1000 : (112.0...119.0)

Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: ? \*

Testing:  
 1st rack travel in: 10.10  
 Speed rpm : 1140...1150

2nd rack travel in: 4.00  
 Speed rpm : 1200...1230

3rd rack travel in: 4.00  
 Speed rpm : 1275...1305

4th rack travel in: 1380  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 17...25  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.2  
Speed rpm : 250  
Rack travel in mm : 6.60...6.80  
Rack travel in mm : 2.00  
Speed rpm : 640...700

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 11.30...11.40  
2nd speed rpm : 400  
Rack travel in m: 11.30...11.50  
3rd speed rpm : 300  
Rack travel in m: 11.50...12.00

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.10  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 245.0...285.0  
1000 s: (241.0...289.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.60...6.80  
Del.quantity cm3/ : 7.0...12.0  
1000 s: (4.5...14.5)  
Spread cm3 : 4.50  
1000 s: (7.50)

Remarks:  
:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,0 z  
 Edition : 24.04.91  
 Replaces : 17.9.90  
 Test oil : ISO-4113

Combination no. : 0 401 876 775

Injection pump  
 Pump designation : PE6P110A320LS3835-3  
 EP type number : 0 411 816 773  
 Governor  
 Governor design. : RSV350...1050POA531-  
 2  
 Governor no. : 0 421 833 343

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 441

1st version kW : 160.0  
 Rated speed : 2100

TEST BENCH REQUIREMENTS <sup>A</sup>

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

D05

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1030

Rack travel in mm : 13.60...13.70

Del.quantity cm<sup>3</sup>/ : 13.8...14.0

100 s: (13.5...14.2)

Spread cm<sup>3</sup> : 0.4

100 s: (0.8)

2nd speed rpm : 350.0  
 Rack travel in mm : 8.3...8.9  
 Del.quantity cm<sup>3</sup>/ : 1.2...1.8  
 100 s: (0.9...2.0)  
 Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1030  
 Del.quantity : 138.0...140.0  
 1000 : (135.5...142.5)  
 Spread cm<sup>3</sup> : 4.00  
 1000 : (8.00)

RATED SPEED

1st version  
 Control lever  
 position degrees: 88...96

Testing:

1st rack travel in: 12.60  
Speed rpm : 1070...1080  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever  
position degrees: 64...72  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 8.6

Testing:  
Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 350  
Rack travel in mm : 8.30...8.90  
Rack travel in mm : 2.00  
Speed rpm : 380...440

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 126.0...130.0  
1000 s: (123.0...133.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (8.00)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.60  
Speed rpm : 1070...1080

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (136.0...164.0)

Remarks:

:

Observe VDT-I-420/120



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : RVI 9,8 m  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 344  
 Injection pump  
 Pump designation : PES6P120A32ORS3277  
 EP type number : 0 412 026 747  
 Governor  
 Governor design. : RQV275...1050PA995  
 Governor no. : 0 421 813 929

Customer-spec. information  
 Customer : RVI

Engine : MIDR 06 20 45

1st version kW : 222.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 9.80...9.90

Del. quantity cm<sup>3</sup>/ : 17.5...17.7

100 s: (17.2...18.0)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.8...5.2

Del. quantity cm<sup>3</sup>/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1130  
travel mm : 8.20...8.40

2nd speed rpm : 275  
travel mm : 0.70...1.10

3rd speed rpm : 500  
travel mm : 3.50...4.10

4th speed rpm : 750  
travel mm : 5.30...5.70

5th speed rpm : 1450  
travel mm : 11.00...12.00

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del. quantity : 175.0...177.0

1000 : (172.0...180.0)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 296...304

Testing:  
1st rack travel in: 8.80  
Speed rpm : 1125...1135  
2nd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 243...251

Testing:  
Speed rpm : 200  
Minimum rack travel: 6.70  
Speed rpm : 275  
Rack travel in mm : 4.90...5.10

CONSTANT REGULATION  
Speed rpm : 310...430

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 9.80...9.90

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.00...8.20  
2nd pressure hPa : 360  
Rack travel in m: 9.20...9.30  
3rd pressure hPa : 200  
Rack travel in m: 8.40...8.60

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 1050

Del.quantity cm3/ : 175.0...181.0  
1000 s: (172.0...184.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 112.0...114.0  
1000 s: (109.0...117.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 8.80  
Speed rpm : 1125...1135

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...160.0  
1000 s: (126.0...164.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : -4.60...-5.00  
Del.quantity cm3/ : 14.0...20.0  
1000 s: (11.0...23.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

:  
Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : RVI 9,8 e  
 Edition : 24.04.91  
 Replaces : 18.2.91  
 Test oil : ISO-4113

Combination no. : 0 402 046 784

Injection pump  
 Pump designation : PES6P120A320RS3139  
 EP type number : 0 412 026 718  
 Governor  
 Governor design. : RQV275...1000PA728-2  
 Governor no. : 0 421 813 599

Customer-spec. information  
 Customer : RVI

Engine : MIDR 062045 E

1st version kW : 236.0  
 Rated speed : 2000

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 1000

Rack travel in mm : 11.20...11.30

Del.quantity cm<sup>3</sup>/ : 16.0...16.2

100 s: (15.7...16.5)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.2...5.6

Del.quantity cm<sup>3</sup>/ : 3.2...3.6

100 s: (2.9...3.9)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 250

travel mm : 0.90...1.10

2nd speed rpm : 450

travel mm : 3.30...3.70

3rd speed rpm : 800

travel mm : 5.60...6.00

4th speed rpm : 1000

travel mm : 7.00...7.20

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1170

Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 160.0...162.0

1000 : (157.0...165.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

RATED SPEED

1st version  
Control lever  
position degrees: 115...123

Testing:  
1st rack travel in: 10.20  
Speed rpm : 1065...1075  
2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 64...72

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.20  
Speed rpm : 275  
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION  
Speed rpm : 230...320

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 11.20...11.30

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.00...8.40  
2nd pressure hPa : 320  
Rack travel in m: 10.50...10.60  
3rd pressure hPa : 160  
Rack travel in m: 9.10...9.30

START CUT-OUT

Speed 1/min : 195 (215)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 182.5...188.5  
1000 s: (179.5...191.5)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 109.5...111.5  
1000 s: (106.5...114.5)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.20  
Speed rpm : 1065...1075

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 155.0...185.0  
1000 s: (151.0...189.0)

LOW IDLE

Speed rpm : 275  
Rack travel in mm : -5.60...-6.00  
Del.quantity cm<sup>3</sup>/ : 32.0...36.0  
1000 s: (29.0...39.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

Remarks:

:

Start-of-delivery mark 9° cam angle  
after start of delivery cyl. 1.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 11,7 a17  
 Edition : 26.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 807  
 Injection pump  
 Pump designation : PES6P110A820LS3131  
 EP type number : 0 412 016 715  
 Governor  
 Governor design. : RQV300...1100PA916  
 Governor no. : 0 421 813 748

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447

1st version kW : 168.0  
 Rated speed : 2200

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
 : (4.25...4.45)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 1100  
 Rack travel in mm : 11.40...11.50  
 Del.quantity cm3/ : 13.7...13.9  
 100 s: (13.4...14.1)  
 Spread cm3 : 0.4  
 100 s: (0.8)

2nd speed rpm : 300.0  
 Rack travel in mm : 7.6...7.8  
 Del.quantity cm3/ : 1.4...2.0  
 100 s: (1.1...2.3)  
 Spread cm3 : 0.4  
 100 s: (0.8)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**  
 1st speed rpm : 300  
 travel mm : 1.10...1.40  
 2nd speed rpm : 450  
 travel mm : 3.40...3.80  
 3rd speed rpm : 1150  
 travel mm : 7.90...8.30  
 4th speed rpm : 1225  
 travel mm : 9.10...9.70

**GUIDE SLEEVE POSITION**  
 Control-lever position  
 Degree: -1  
 Speed rpm : 1160  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1100  
 Del.quantity : 137.0...139.0  
 1000 : (134.5...141.5)

Spread cm3 : 4.00  
1000 : (8.00)

Remarks: :

RATED SPEED

1st version  
Control lever  
position degrees: 114...122

Testing:  
1st rack travel in: 10.40  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1195...1225  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 85...93

Testing:  
Speed rpm : 200  
Minimum rack trave: 9.20  
Speed rpm : 300  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 300...500

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600  
Del.quantity cm3/ : 113.0...116.0  
1000 s: (110.0...119.0)  
Spread cm3 : 5.00  
1000 s: (9.00)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.40  
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MTU 19,9 f  
 Edition : 26.4.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 436 030  
 Injection pump  
 Pump designation : PE6ZW150/410/3RS61/2  
 EP type number : 0 412 456 002  
 Governor  
 Governor design. : RGVV300...750ZWA31L  
 Governor no. : 0 422 408 012

Customer-spec. information  
 Customer : MTU

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 40...45  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 443 022

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 027

Outside diameter  
 x Wall thickness  
 x Length mm : 8,00x2,00x1500

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 12.00  
 Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 600  
 Rack travel in mm : 18.00  
 Del. quantity cm<sup>3</sup>/ : 57.7...58.7  
 100 s : (57.4...59.0)  
 Spread cm<sup>3</sup> : 1.5  
 100 s : (2.2)

2nd speed rpm : 600  
 Rack travel in mm : 6.00  
 Del. quantity cm<sup>3</sup>/ : 9.8...11.8  
 100 s : (9.5...12.1)  
 Spread cm<sup>3</sup> : 1.0  
 100 s : (1.5)  
 3rd speed rpm : 200  
 Rack travel in mm : 6.00  
 Del. quantity cm<sup>3</sup>/ : 1.6...3.6  
 100 s : (1.3...3.9)  
 Spread cm<sup>3</sup> : 0.8  
 100 s : (1.2)

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: 82...88  
 Speed rpm : 750  
 Rack travel in mm : 17.5...18.5

## RATED SPEED

### 1st version

Setting point:  
 Speed rpm : 750  
 Rack travel in mm : 18.0

Testing:  
 1st rack travel in: 17.00  
 Speed rpm : 750...770  
 2nd rack travel in: 5.00  
 Speed rpm : 785...815  
 4th rack travel in: 810  
 Speed rpm : 0.00...3.00

## LOW IDLE 1

Control lever  
 position degrees: 15.5...22.5

Testing:  
 Speed rpm : 270  
 Minimum rack travel: 13.00  
 Speed rpm : 350  
 Rack travel in mm : 4.70...4.90  
 Rack travel in mm : 3.80

Speed rpm : 380...420  
Rack travel in mm : <0.01  
Speed rpm : 540

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 17.00  
Speed rpm : 755...765

Remarks:

Full-load delivery is set on engine  
according to engine test report.



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 11,0 t  
 Edition : 26.04.91  
 Replaces : 30.11.90  
 Test oil : ISO-4113

Combination no. : 0 402 646 838

Injection pump  
 Pump designation : PE6P120A320LS7808  
 EP type number : 0 412 626 816  
 Governor  
 Governor design. : RQ300/1050PA762-4  
 Governor no. : 0 421 801 390

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 240.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del. quantity cm<sup>3</sup>/ : 21.4...21.6

100 s: (21.1...21.9)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del. quantity cm<sup>3</sup>/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del. quantity : 214.0...216.0

1000 : (211.0...219.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:  
1st rack travel in: 13.80  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.90  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL  
Dimension a mm : 0.30  
2nd speed rpm : 1050  
Rack travel in m: 14.80...15.00  
3rd speed rpm : 800  
Rack travel in m: 15.00...15.20

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.90...14.10

Measurement  
Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 10.70...10.90  
2nd pressure hPa : 550  
Rack travel in m: 12.70...12.90  
3rd pressure hPa : 1050  
Rack travel in m: 14.00...14.10 \*  
4th pressure hPa : 1150  
Rack travel in m: 14.40...14.70  
5th pressure hPa : -  
Rack travel in m: 9.50...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1450  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 231.0...234.0  
1000 s: (228.0...237.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1450  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 237.0...241.0  
1000 s: (234.0...244.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 142.0...144.0  
1000 s: (139.0...147.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.80  
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 200.0...222.0  
1000 s: (196.0...226.0)

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : MB 11,0 t 2  
 Edition : 26.04.91  
 Replaces : 19.3.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump  
 Pump designation : PE6P120A320LS7808  
 EP type number : 0 412 626 816  
 Governor  
 Governor design. : RQV300...1050PA797-2  
 Governor no. : 0 421 813 614

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 240.0  
 Rated speed : 2100

### TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

### BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del. quantity cm<sup>3</sup>/ : 21.4...21.6

100 s: (21.1...21.9)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del. quantity cm<sup>3</sup>/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

### GUIDE SLEEVE TRAVEL

1st speed rpm : 300

travel mm : 1.20...1.40

2nd speed rpm : 600

travel mm : 4.90...5.10

3rd speed rpm : 1075

travel mm : 7.40...7.60

4th speed rpm : 1100

travel mm : 8.00...8.40

5th speed rpm : 1150

travel mm : 9.00...9.40

### GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 900  
Del. quantity : 214.0...216.0  
1000 : (211.0...219.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 121...129

Testing:  
1st rack travel in: 13.80  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 81...89

Testing:  
Speed rpm : 200  
Minimum rack trave: 7.90  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20

CONSTANT REGULATION  
Speed rpm : 300...450

TORQUE CONTROL  
Dimension a mm : 0.30  
2nd speed rpm : 1050  
Rack travel in m: 14.80...15.00  
3rd speed rpm : 800  
Rack travel in m: 15.00...15.20  
4th speed rpm : 700

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.90...14.10

Measurement  
Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 10.70...10.90  
2nd pressure hPa : 550  
Rack travel in m: 12.70...12.90

3rd pressure hPa : 1050  
Rack travel in m: 14.00...14.10 \*  
4th pressure hPa : 1150  
Rack travel in m: 14.40...14.70  
5th pressure hPa : -  
Rack travel in m: 9.50...9.80

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1450  
Speed rpm : 1050  
Del. quantity cm<sup>3</sup>/ : 231.0...234.0  
1000 s: (228.0...237.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1450  
Speed rpm : 800  
Del. quantity cm<sup>3</sup>/ : 237.0...241.0  
1000 s: (234.0...244.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 142.0...144.0  
1000 s: (139.0...147.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.80  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 9,6 g  
 Edition : 03.05.91  
 Replaces : 14.12.90  
 Test oil : ISO-4113

Combination no. : 0 402 646 915

Injection pump  
 Pump designation : PE6P120A320LS7836  
 EP type number : 0 412 626 840  
 Governor  
 Governor design. : RQ300/1050PA972  
 Governor no. : 0 421 801 542

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 200.0  
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)

Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.40...12.60

Del.quantity cm<sup>3</sup>/ : 18.2...18.4

100 s: (17.9...18.7)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.5...5.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del.quantity : 182.0...184.0

1000 : (179.0...187.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.10  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:

Speed rpm : 200  
Minimum rack trave: 7.50  
Speed rpm : 300  
Rack travel in mm : 5.50...5.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 12.40...12.60

Measurement

Speed 1/min : 600

1st pressure hPa : 250  
Rack travel in m: 12.20...12.40  
2nd pressure hPa : 500  
Rack travel in m: 11.60...11.80  
3rd pressure hPa : 1000  
Rack travel in m: 12.60...12.80 \*  
4th pressure hPa : 1150  
Rack travel in m: 12.90...13.10  
5th pressure hPa : -  
Rack travel in m: 10.00...10.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 1050  
Del.quantity cm3/ : 201.0...204.0  
1000 s: (198.0...207.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm3/ : 202.0...206.0  
1000 s: (199.0...209.0)

Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.10  
Speed rpm : 1090...1105

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 r  
 Edition : 03.05.91  
 Replaces : 18.1.91  
 Test oil : ISO-4113  
  
 Combination no. : 0 402 646 916  
  
 Injection pump  
 Pump designation : PE6P120A320LS7836  
 EP type number : 0 412 626 840  
 Governor  
 Governor design. : RGV300...1050PA797-17  
 Governor no. : 0 421 813 884  
  
 Customer-spec. information  
 Customer : MERCEDES-BENZ  
  
 Engine : OM401 LA  
  
 1st version kW : 200.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
  
 Overflow valve : 1 417 413 025  
  
 Inlet press., bar : 1.50  
  
 Overflow  
 quantity min. 1/h: 100...120  
  
 Test nozzle holder  
 assembly : 1 688 901 105  
  
 Opening  
 pressure, bar : 207...210  
  
 Orifice plate  
 diameter mm : 0,8  
  
 Test lines : 1 680 750 075  
  
 Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
  
 Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1  
  
 Phasing : 0-60-120-180-240-300  
  
 Tolerance + - ° : 0.50 (0.75)  
  
 Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600  


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 Rack travel in mm : 12.40...12.60  


---

 Del. quantity cm<sup>3</sup>/ : 18.2...18.4  
 100 s : (17.9...18.7)  


---

 Spread cm<sup>3</sup> : 0.5  
 100 s : (0.9)  


---

 2nd speed rpm : 300.0  
 Rack travel in mm : 5.4...5.9  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s : (1.3...2.5)  
 Spread cm<sup>3</sup> : 0.6  
 100 s : (1.0)

(B) Setting of injection pump with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.00...1.50  
 2nd speed rpm : 600  
 travel mm : 4.80...5.30  
 3rd speed rpm : 820  
 travel mm : 5.90...6.40  
 4th speed rpm : 1107  
 travel mm : 8.30...8.80  
 5th speed rpm : 7183  
 travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1125  
 Rack travel in mm : 15.20...17.20

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 800  
Del.quantity : 182.0...184.0  
1000 : (179.0...187.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 12.10  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 80...88

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.60  
Speed rpm : 300  
Rack travel in mm : 5.40...5.90

CONSTANT REGULATION  
Speed rpm : 300...500

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 12.40...12.60

Measurement  
Speed 1/min : 600

1st pressure hPa : 250  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 500  
Rack travel in m: 11.60...11.80  
3rd pressure hPa : 1000  
Rack travel in m: 12.60...12.80 \*  
4th pressure hPa : 1150  
Rack travel in m: 12.90...13.10  
5th pressure hPa : -  
Rack travel in m: 10.00...10.30

#### START CUT-OUT

Speed 1/min : 240 (260)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1400  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 201.0...204.0  
1000 s: (198.0...207.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 202.0...206.0  
1000 s: (199.0...209.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.10  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 o  
Edition : 24.04.91  
Replaces : 23.11.90  
Test oil : ISO-4113

Combination no. : 0 402 646 917

Injection pump  
Pump designation : PE6P120A320LS7834  
EP type number : 0 412 626 841  
Governor  
Governor design. : RQ300/950PA971  
Governor no. : 0 421 801 543

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0  
Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
(5.45...5.65)  
Rack travel in mm : 20.00...21.00  
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.50...14.70

Del.quantity cm<sup>3</sup>/ : 22.7...22.9

100 s: (22.4...23.2)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.9

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1100

Del.quantity : 227.0...229.0

1000 : (224.0...232.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.6

Testing:

Speed rpm : 200  
Minimum rack trave: 8.50  
Speed rpm : 300  
Rack travel in mm : 6.30...6.90  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.35  
2nd speed rpm : 950  
Rack travel in m: 14.90...15.10  
3rd speed rpm : 800  
Rack travel in m: 15.20...15.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1100  
Rack travel mm : 14.50...14.70

Measurement

Speed 1/min : 600  
1st pressure hPa : 300  
Rack travel in m: 10.70...10.90  
2nd pressure hPa : 700  
Rack travel in m: 13.20...13.40  
3rd pressure hPa : 1400  
Rack travel in m: 14.60...14.80 \*  
4th pressure hPa : 1550  
Rack travel in m: 14.90...15.10  
5th pressure hPa : -  
Rack travel in m: 9.70...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800  
Speed rpm : 950

Del.quantity cm3/ : 236.0...239.0  
1000 s: (233.0...242.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del.quantity cm3/ : 243.0...247.0  
1000 s: (240.0...250.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 13.90  
Speed rpm : 990...1005

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 9,6 p  
 Edition : 24.04.91  
 Replaces : 7.1.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 924

Injection pump  
 Pump designation : PE6P120A320LS7837  
 EP type number : 0 412 626 842  
 Governor  
 Governor design. : RQ300/950PA971-3  
 Governor no. : 0 421 801 557

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 250.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm<sup>3</sup>/ : 23.3...23.5

100 s : (23.0...23.8)

Spread cm<sup>3</sup> : 0.5

100 s : (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s : (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s : (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 233.0...235.0

1000 : (230.0...238.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.50  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:

Speed rpm : 200  
Minimum rack trave: 7.90  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.40  
2nd speed rpm : 950  
Rack travel in m: 15.50...15.70  
3rd speed rpm : 800  
Rack travel in m: 15.60...15.80

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 600  
Rack travel in m: 13.50...13.70  
3rd pressure hPa : 1250  
Rack travel in m: 14.80...15.00 \*  
4th pressure hPa : 1450  
Rack travel in m: 15.40...15.60  
5th pressure hPa : -  
Rack travel in m: 9.30...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800  
Speed rpm : 950

Del.quantity cm3/ : 251.0...254.0  
1000 s: (248.0...257.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del.quantity cm3/ : 250.0...254.0  
1000 s: (247.0...257.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 135.0...137.0  
1000 s: (132.0...140.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.50  
Speed rpm : 990...1005

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 9,6 o 1  
 Edition : 24.04.91  
 Replaces : 27.2.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 646 926  
 Injection pump  
 Pump designation : PE6P120A320LS7834  
 EP type number : 0 412 626 841  
 Governor  
 Governor design. : RQV300...950PA797-19  
 Governor no. : 0 421 813 901

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600  


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 Rack travel in mm : 14.70...14.90  


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 Del. quantity cm<sup>3</sup>/ : 22.9...23.1  
 100 s: (22.6...23.4)  


---

 Spread cm<sup>3</sup> : 0.5  


---

 100 s: (0.9)  


---

2nd speed rpm : 300.0  
 Rack travel in mm : 6.3...6.9  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.00...1.50  
 2nd speed rpm : 617  
 travel mm : 5.00...5.50  
 3rd speed rpm : 780  
 travel mm : 6.10...6.60  
 4th speed rpm : 1009  
 travel mm : 8.30...8.80  
 5th speed rpm : 1092  
 travel mm : 9.80...10.30

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1020  
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 1100  
Del. quantity : 229.0...231.0  
1000 : (226.0...234.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 13.90  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1090...1120  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack trave: 8.50  
Speed rpm : 300  
Rack travel in mm : 6.50...7.10

#### CONSTANT REGULATION

Speed rpm : 300...500

#### TORQUE CONTROL

2nd speed rpm : 950  
Rack travel in m: 14.90...15.10  
3rd speed rpm : 800  
Rack travel in m: 15.30...15.50

#### Aneroid/Altitude Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 1100  
Rack travel mm : 14.50...14.70

Measurement  
Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 10.70...10.90  
2nd pressure hPa : 700  
Rack travel in m: 13.20...13.40  
3rd pressure hPa : 1400  
Rack travel in m: 14.60...14.80 \*

4th pressure hPa : 1550  
Rack travel in m: 14.90...15.10  
5th pressure hPa : -  
Rack travel in m: 9.70...10.00

#### START CUT-OUT

Speed 1/min : 240 (260)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1800  
Speed rpm : 950  
Del. quantity cm<sup>3</sup>/ : 234.0...237.0  
1000 s: (231.0...240.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del. quantity cm<sup>3</sup>/ : 243.0...247.0  
1000 s: (240.0...250.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.90  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 210.0...230.0  
1000 s: (206.0...234.0)

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 9,6 o 3  
 Edition : 26.04.91  
 Replaces : 1.3.91  
 Test oil : ISO-4113  
  
 Combination no. : 0 402 646 929  
  
 Injection pump  
 Pump designation : PE6P120A320LS7834  
 EP type number : 0 412 626 841  
 Governor  
 Governor design. : RQV300...1050PA797-  
 25  
 Governor no. : 0 421 813 924

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del. quantity cm<sup>3</sup>/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...7.1

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 1.00...1.50

2nd speed rpm : 608  
travel mm : 4.80...5.30

3rd speed rpm : 820  
travel mm : 5.90...6.40

4th speed rpm : 1108  
travel mm : 8.30...8.80

5th speed rpm : 1183  
travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1085

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h : 1100  
Del.quantity : 229.0...231.0  
1000 : (226.0...234.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 120...128

Testing:  
1st rack travel in: 13.90  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 87...92

Testing:  
Speed rpm : 200  
Minimum rack travel: 8.70  
Speed rpm : 300  
Rack travel in mm : 6.50...7.10

CONSTANT REGULATION  
Speed rpm : 300...450

TORQUE CONTROL  
Dimension a mm : 0.40  
2nd speed rpm : 1050  
Rack travel in m: 14.90...15.10  
3rd speed rpm : 800  
Rack travel in m: 15.30...15.50

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 1100  
Rack travel mm : 14.70...14.90

Measurement  
Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 10.90...11.10  
2nd pressure hPa : 700  
Rack travel in m: 13.40...13.60

E02

3rd pressure hPa : 1400  
Rack travel in m: 14.90...15.00  
4th pressure hPa : 1550  
Rack travel in m: 15.10...15.30  
5th pressure hPa : -  
Rack travel in m: 9.70..10.00

#### START CUT-OUT

Speed 1/min : 240 (260)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1800  
Speed rpm : 1050  
Del.quantity cm3/ : 234.0...237.0  
1000 s: (231.0...240.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del.quantity cm3/ : 243.0...247.0  
1000 s: (240.0...250.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.90  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 220.0...240.0  
1000 s: (216.0...244.0)

Remarks:

:



## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : MB 9,6 o 4  
Edition : 26.04.91  
Replaces : 19.3.91  
Test oil : ISO-4113

Combination no. : 0 402 646 930

Injection pump  
Pump designation : PE6P120A320LS7834  
EP type number : 0 412 626 841  
Governor  
Governor design. : RQ300/1050PA972-7  
Governor no. : 0 421 801 583

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 230.0  
Rated speed : 2100

### TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
quantity min. 1/h: 100...120

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
                  : (5.45...5.65)  
Rack travel in mm : 20.00...21.00  
Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

### BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del. quantity cm<sup>3</sup>/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.5...7.1

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

### GUIDE SLEEVE POSITION

Control-Lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

### FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1100

Del. quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

### RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.8

Testing:

Speed rpm : 200  
Minimum rack trave: 8.70  
Speed rpm : 300  
Rack travel in mm : 6.50...7.10  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 1050  
Rack travel in m: 14.90...15.10  
3rd speed rpm : 800  
Rack travel in m: 15.30...15.50

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1100  
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 10.90...11.10  
2nd pressure hPa : 700  
Rack travel in m: 13.40...13.60  
3rd pressure hPa : 1400  
Rack travel in m: 14.80...15.00 \*  
4th pressure hPa : 1550  
Rack travel in m: 15.10...15.30  
5th pressure hPa : -  
Rack travel in m: 9.70...10.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800  
Speed rpm : 1050

Del.quantity cm3/ : 234.0...237.0  
1000 s: (231.0...240.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del.quantity cm3/ : 243.0...247.0  
1000 s: (240.0...250.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.90  
Speed rpm : 1090...1105

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 11,1 b 1  
 Edition : 24.04.91  
 Replaces : 27.2.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 646 931  
 Injection pump  
 Pump designation : PE6P120A320LS7837  
 EP type number : 0 412 626 842  
 Governor  
 Governor design. : RQV300...1050PA797-  
 24  
 Governor no. : 0 421 813 911

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27  
 Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm<sup>3</sup>/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0  
 Rack travel in mm : 5.6...6.2  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.00...1.50  
 2nd speed rpm : 608  
 travel mm : 4.80...5.30  
 3rd speed rpm : 820  
 travel mm : 5.90...6.40  
 4th speed rpm : 1108  
 travel mm : 8.30...8.80  
 5th speed rpm : 1280  
 travel mm : 11.00...12.00

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1100  
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600  
Aneroid pressure h: 1000  
Del. quantity : 234.0...236.0  
1000 : (231.0...239.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

RATED SPEED

1st version

Control lever  
position degrees: 118...126

Testing:

1st rack travel in: 13.90  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 81...89

Testing:

Speed rpm : 200  
Minimum rack travel: 7.70  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20

CONSTANT REGULATION

Speed rpm : 300...550

TORQUE CONTROL

Dimension a mm : 0.60  
2nd speed rpm : 1050  
Rack travel in m: 14.90...15.10  
3rd speed rpm : 800  
Rack travel in m: 15.50...15.70

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600

1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 600  
Rack travel in m: 13.50...13.70

E06

3rd pressure hPa : 1250  
Rack travel in m: 14.80...15.00 \*  
4th pressure hPa : 1400  
Rack travel in m: 15.30...15.50  
5th pressure hPa : -  
Rack travel in m: 9.30...9.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800  
Speed rpm : 1050  
Del. quantity cm<sup>3</sup>/ : 235.0...238.0  
1000 s: (232.0...241.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del. quantity cm<sup>3</sup>/ : 248.0...252.0  
1000 s: (245.0...255.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 135.0...137.0  
1000 s: (132.0...140.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 13.90  
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 220.0...240.0  
1000 s: (216.0...244.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,7 a
Edition : 03.05.91
Replaces : 1.3.91
Test oil : ISO-4113
Combination no. : 0 402 646 932
Injection pump
Pump designation : PE6P120A32ORS7228
EP type number : 0 412 626 845
Governor
Governor design. : RQV275...1150PA986
Governor no. : 0 421 813 920

Customer-spec. information
Customer : DAF

Engine : RS 222

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder
assembly : 1 688 901 105
Opening
pressure, bar : 207...210
Orifice plate
diameter mm : 0,8
Test lines : 1 680 750 089
Outside diameter
x Wall thickness
x Length mm : 8.00X2.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 14.20...15.20

E07

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.50...5.70
& maximum rack tra: 14.2...15.2
Difference ° CS : 3.25...4.75

BASIC SETTING

1st speed rpm : 1000
Rack travel in mm : 14.70...14.80
Del. quantity cm3/ : 17.7...17.9
100 s: (17.4...18.2)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 275.0
Rack travel in mm : 6.6...6.8
Del. quantity cm3/ : 1.3...1.9
100 s: (1.0...2.2)
Spread cm3 : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275
travel mm : 1.20...1.60
2nd speed rpm : 315
travel mm : 1.80...2.20
3rd speed rpm : 1205
travel mm : 8.10...8.50
4th speed rpm : 1340
travel mm : 9.70...9.90

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1250
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 1000
Aneroid pressure h: 1000

Del. quantity : 177.0...179.0  
1000 : (174.0...182.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control Lever  
position degrees: 116...124

#### Testing:

1st rack travel in: 13.70  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1320...1350  
4th rack travel in: 1450  
Speed rpm : 0.00...1.40

#### LOW IDLE 1

Control Lever  
position degrees: 79...87

#### Testing:

Speed rpm : 100  
Minimum rack travel: 7.10  
Speed rpm : 275  
Rack travel in mm : 5.50...5.70

#### CONSTANT REGULATION

Speed rpm : 315...365

#### Aneroid/Altitude Compensator Test

#### 1st version

##### Setting

Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.70...14.80

##### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 12.60...12.80  
2nd pressure hPa : 470  
Rack travel in m: 13.90...14.00  
3rd pressure hPa : 350  
Rack travel in m: 13.00...13.20

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 131.0...133.0  
1000 s: (128.0...136.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 13.70  
Speed rpm : 1190...1200

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 5.50...5.70

#### Remarks:

:  
Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,7 b
Edition : 03.05.91
Replaces : 22.3.91
Test oil : ISO-4113
Combination no. : 0 402 646 933
Injection pump
Pump designation : PE6P120A320RS7228
EP type number : 0 412 626 845
Governor
Governor design. : RQ275/1150PA987
Governor no. : 0 421 801 578

Customer-spec. information
Customer : DAF

Engine : RS 222

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter x Wall thickness x Length mm : 8.00X2.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30
: (5.15...5.35)
Rack travel in mm : 14.20...15.20

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.50...5.70
& maximum rack tra: 14.2...15.2
Difference ° CS : 3.25...4.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 14.70...14.80

Del.quantity cm3/ : 17.7...17.9

100 s: (17.4...18.2)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 6.6...6.8

Del.quantity cm3/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm3 : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 177.0...179.0

1000 : (174.0...182.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 13.70  
Speed rpm : 1175...1190  
2nd rack travel in: 4.00  
Speed rpm : 1260...1290  
4th rack travel in: 1450  
Speed rpm : 0.00...1.40

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 275  
Rack travel in mm : 5.6

Testing:

Speed rpm : 100  
Minimum rack travel: 7.10  
Speed rpm : 275  
Rack travel in mm : 5.50...5.70  
Rack travel in mm : 2.00  
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 15.00...15.10  
2nd speed rpm : 1150  
Rack travel in m: 14.90...15.10

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.70...14.80

Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 12.60...12.80  
2nd pressure hPa : 470  
Rack travel in m: 13.90...14.00  
3rd pressure hPa : 350  
Rack travel in m: 13.00...13.20

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 131.0...133.0  
1000 s: (128.0...136.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.70  
Speed rpm : 1175...1190

LOW IDLE

Speed rpm : 275  
Rack travel in mm : 5.50...5.70

Remarks:

:

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,7 c  
Edition : 03.05.91  
Replaces : 18.2.91  
Test oil : ISO-4113  
  
Combination no. : 0 402 646 934  
  
Injection pump  
Pump designation : PE6P120A32ORS7229  
EP type number : 0 412 626 844  
Governor  
Governor design. : RQ275/1150PA987  
Governor no. : 0 421 801 578

Customer-spec. information  
Customer : DAF

Engine : RS 200

TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
^  
Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 105

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter  
x Wall thickness  
x Length mm : 8.00X2.50X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY  
Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
: (5.15...5.35)  
Rack travel in mm : 13.00...14.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.50...5.70  
& maximum rack tra: 13.0...14.0  
Difference ° CS : 3.25...4.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.50...13.60

Del.quantity cm<sup>3</sup>/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 6.1...6.3

Del.quantity cm<sup>3</sup>/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 550

Rack travel in mm : 15.60...16.40

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 163.0...165.0

1000 : (160.0...168.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 550

Rack travel in mm : 16.0

Testing:

1st rack travel in: 12.50  
Speed rpm : 1185...1200  
2nd rack travel in: 4.00  
Speed rpm : 1270...1300  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 275  
Rack travel in mm : 5.6

Testing:

Speed rpm : 100  
Minimum rack travel: 7.10  
Speed rpm : 275  
Rack travel in mm : 5.50...5.70  
Rack travel in mm : 2.00  
Speed rpm : 330...370

TORQUE CONTROL

Dimension a mm : -  
Torque control curve - 1st version  
1st speed rpm : 1000  
Rack travel in m: 13.80...13.90  
2nd speed rpm : 1150  
Rack travel in m: 13.70...13.90

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 13.50...13.60

Measurement

Speed 1/min : 600  
1st pressure hPa : -  
Rack travel in m: 11.70...11.90  
2nd pressure hPa : 180  
Rack travel in m: 12.60...12.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 117.0...119.0  
1000 s: (114.0...122.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.50  
Speed rpm : 1185...1200

LOW IDLE

Speed rpm : 275  
Rack travel in mm : 5.50...5.70

Remarks:

:  
Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,7 d  
 Edition : 03.05.91  
 Replaces : 18.2.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 935

Injection pump  
 Pump designation : PE6P120A320RS7229  
 EP type number : 0 412 626 844  
 Governor  
 Governor design. : RQV275...1150PA986  
 Governor no. : 0 421 813 920

Customer-spec. information  
 Customer : DAF

Engine : RS 200

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 13.00...14.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 5.50...5.70  
 & maximum rack tra: 13.0... 14.0  
 Difference ° CS : 3.25...4.75

BASIC SETTING

1st speed rpm : 1000

Rack travel in mm : 13.50...13.60

Del.quantity cm<sup>3</sup>/ : 16.3...16.5

100 s: (16.0...16.8)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 6.1...6.3

Del.quantity cm<sup>3</sup>/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 275

travel mm : 1.20...1.60

2nd speed rpm : 315

travel mm : 1.80...2.20

3rd speed rpm : 1205

travel mm : 8.10...8.50

4th speed rpm : 1340

travel mm : 9.70...9.90

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1250

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del.quantity : 163.0...165.0  
1000 : (160.0...168.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 116...124

#### Testing:

1st rack travel in: 12.50  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1305...1335  
4th rack travel in: 1450  
Speed rpm : 0.00...1.40

#### LOW IDLE 1

Control lever  
position degrees: 79...87

#### Testing:

Speed rpm : 100  
Minimum rack travel: 7.10  
Speed rpm : 275  
Rack travel in mm : 5.50...5.70

#### CONSTANT REGULATION

Speed rpm : 315...365

#### Aneroid/Altitude Compensator Test

#### 1st version

##### Setting

Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 13.50...13.60

##### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 11.70...11.90  
2nd pressure hPa : 180  
Rack travel in m: 12.60...12.70

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 117.0...119.0  
1000 s: (114.0...122.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.50  
Speed rpm : 1190...1200

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 5.50...5.70

#### Remarks:

:  
Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 n
Edition : 03.05.91
Replaces : 19.3.91
Test oil : ISO-4113
Combination no. : 0 402 646 936
Injection pump
Pump designation : PE6P120A32ORS7230
EP type number : 0 412 626 843
Governor
Governor design. : RQV250...1000PA990K
Governor no. : 0 421 815 274

Customer-spec. information
Customer : DAF

Engine : WS 315

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 1 688 901 105

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)

Rack travel in mm : 13.80...14.80

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 980

Rack travel in mm : 14.20...14.30

Del.quantity cm3/ : 26.4...26.6

100 s: (26.1...26.9)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 5.8...6.0

Del.quantity cm3/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm3 : 0.8

100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.30...1.70

2nd speed rpm : 285
travel mm : 2.10...2.50

3rd speed rpm : 1030
travel mm : 9.60...10.00

4th speed rpm : 1145
travel mm : 11.20...11.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 980

Aneroid pressure h: 1500

Del.quantity : 264.0...266.0

1000 : (261.0...269.0)

Spread cm3 : 5.00

1000 : (9.00)

RATED SPEED

1st version  
Control lever  
position degrees: 115...123

Testing:  
1st rack travel in: 13.20  
Speed rpm : 1030...1040  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1275  
Speed rpm : 0.00...1.40

LOW IDLE 1  
Control lever  
position degrees: ?

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.60  
Speed rpm : 250  
Rack travel in mm : 5.10...5.30  
Rack travel in mm : 2.00  
Speed rpm : 310...350

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 500  
Rack travel in m: 13.00...13.10  
2nd speed rpm : 750  
Rack travel in m: 13.30...13.50  
3rd speed rpm : 825  
Rack travel in m: 13.80...14.00  
4th speed rpm : 980  
Rack travel in m: 14.70...14.90

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 980  
Pressure hPa : 1500  
Rack travel mm : 14.20...14.30

Measurement  
Speed 1/min : 980

1st pressure hPa : -  
Rack travel in m: 8.80...9.00  
2nd pressure hPa : 600  
Rack travel in m: 11.80...11.90  
3rd pressure hPa : 330  
Rack travel in m: 10.00...10.20

#### FUEL DELIVERY CHARACTERISTICS

1st version

E16

Aneroid pressure h: 1500  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 288.0...292.0  
1000 s: (285.0...295.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 162.0...164.0  
1000 s: (159.0...167.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.20  
Speed rpm : 1030...1040

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.10...5.30

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

## Note remarks

Test sheet : MB 9,6 r 1  
 Edition : 03.05.91  
 Replaces : 1.3.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 939

Injection pump  
 Pump designation : PE6P120A320LS7836  
 EP type number : 0 412 626 840  
 Governor  
 Governor design. : RQV300...950PA797-31  
 Governor no. : 0 421 813 922

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 200.0  
 Rated speed : 1900

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 12.40...12.60

Del. quantity cm<sup>3</sup>/ : 18.2...18.4

100 s: (17.9...18.7)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.00...1.50

2nd speed rpm : 617  
 travel mm : 5.00...5.50

3rd speed rpm : 780  
 travel mm : 6.10...6.60

4th speed rpm : 1009  
 travel mm : 8.30...8.80

5th speed rpm : 1092  
 travel mm : 9.80...10.30

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 850  
Del. quantity : 182.0...184.0  
1000 : (179.0...187.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 12.10  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1075...1105  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.30  
Speed rpm : 300  
Rack travel in mm : 5.20...5.80

CONSTANT REGULATION  
Speed rpm : 300...450

TORQUE CONTROL  
Dimension a mm : -  
2nd speed rpm : 950  
Rack travel in m: 13.10...13.30  
3rd speed rpm : 800  
Rack travel in m: 13.10...13.30

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 12.40...12.50

Measurement  
Speed 1/min : 600

1st pressure hPa : 250  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 500  
Rack travel in m: 11.60...11.80  
3rd pressure hPa : 1000

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Rack travel in m: 12.60...12.80  
4th pressure hPa : 1150  
Rack travel in m: 12.90...13.10  
5th pressure hPa : -  
Rack travel in m: 10.00...10.30

#### START CUT-OUT

Speed 1/min : 240 (260)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1400  
Speed rpm : 950  
Del. quantity cm3/ : 203.0...206.0  
1000 s: (200.0...209.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 800  
Del. quantity cm3/ : 202.0...206.0  
1000 s: (199.0...209.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack travel: 12.10  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks: :



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 9,6 q 1  
 Edition : 03.05.91  
 Replaces : 18.2.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 940

Injection pump  
 Pump designation : PE6P120A320LS7836  
 EP type number : 0 412 626 840  
 Governor  
 Governor design. : RQ300/950PA971-7  
 Governor no. : 0 421 801 580

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 200.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 12.40...12.60

Del. quantity cm<sup>3</sup>/ : 18.2...18.4

100 s: (17.9...18.7)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.3...5.9

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 800

Del. quantity : 182.0...184.0

1000 : (179.0...187.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:  
1st rack travel in: 12.10  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.40  
Speed rpm : 300  
Rack travel in mm : 5.30...5.90  
Rack travel in mm : 2.00  
Speed rpm : 370...410

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 12.40...12.60

Measurement  
Speed 1/min : 600  
1st pressure hPa : 250  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 500  
Rack travel in m: 11.60...11.80  
3rd pressure hPa : 1000  
Rack travel in m: 12.60...12.80  
4th pressure hPa : 1150  
Rack travel in m: 12.90...13.10  
5th pressure hPa : -  
Rack travel in m: 10.00...10.30

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1400  
Speed rpm : 950  
Del.quantity cm3/ : 203.0...206.0  
1000 s: (200.0...209.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm3/ : 202.0...206.0  
1000 s: (199.0...209.0)

Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.10  
Speed rpm : 990...1005

Remarks: :

## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : MB 11,1 d  
 Edition : 26.04.91  
 Replaces : 19.3.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 942

Injection pump  
 Pump designation : PE6P120A320LS7837  
 EP type number : 0 412 626 842  
 Governor  
 Governor design. : RQ300/1050PA993  
 Governor no. : 0 421 801 581

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 250.0  
 Rated speed : 2100

### TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

### BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del.quantity cm<sup>3</sup>/ : 23.4...23.6

100 s: (23.1...23.9)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

### GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

### FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 234.0...236.0

1000 : (231.0...239.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

### RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.90  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1145...1175  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:

Speed rpm : 200  
Minimum rack trave: 7.70  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 1050  
Rack travel in m: 14.90...15.10  
3rd speed rpm : 800  
Rack travel in m: 15.50...15.70

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600  
1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 600  
Rack travel in m: 13.50...13.70  
3rd pressure hPa : 1250  
Rack travel in m: 14.80...15.00 \*  
4th pressure hPa : 1400  
Rack travel in m: 15.30...15.50  
5th pressure hPa : -  
Rack travel in m: 9.30...9.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800  
Speed rpm : 1050  
Del.quantity cm3/ : 235.0...238.0  
1000 s: (232.0...241.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del.quantity cm3/ : 248.0...252.0  
1000 s: (245.0...255.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 135.0...137.0  
1000 s: (132.0...140.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 13.90  
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 220.0...240.0  
1000 s: (216.0...244.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,7 n1
Edition : 03.05.91
Replaces : -
Test oil : ISO-4113
Combination no. : 0 402 646 949
Injection pump
Pump designation : PE6P120A320RS7230Z
EP type number : 0 412 626 848
Governor
Governor design. : RQV250...1000PA990K
Governor no. : 0 421 815 274

Customer-spec. information
Customer : DAF

Engine : WS 295 G

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder
assembly : 1 688 901 105
Opening
pressure, bar : 207...210
Orifice plate
diameter mm : 0,8

Test lines : 1 680 750 089

Outside diameter
x Wall thickness
x Length mm : 8.00x2.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27
Prestroke mm : 5.00...5.10
: (4.95...5.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 980
Rack travel in mm : 13.70...13.80
Del.quantity cm3/ : 25.4...25.6
100 s: (25.1...25.9)
Spread cm3 : 0.5
100 s: (0.9)

2nd speed rpm : 250.0
Rack travel in mm : 5.8...6.0
Del.quantity cm3/ : 1.4...2.0
100 s: (1.1...2.3)
Spread cm3 : 0.8
100 s: (1.2)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250
travel mm : 1.30...1.70
2nd speed rpm : 285
travel mm : 2.10...2.50
3rd speed rpm : 1030
travel mm : 9.60...10.00
4th speed rpm : 1145
travel mm : 11.20...11.40

GUIDE SLEEVE POSITION

Control-lever position
Degree: -1
Speed rpm : 1070
Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 980
Aneroid pressure h: 1500
Del.quantity : 254.0...256.0
1000 : (251.0...259.0)
Spread cm3 : 5.00
1000 : (9.00)

RATED SPEED

1st version  
Control lever  
position degrees: 115...123

Testing:  
1st rack travel in: 12.70  
Speed rpm : 1030...1040  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1275  
Speed rpm : 0.00...1.40

LOW IDLE 1  
Control lever  
position degrees: ?

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.60  
Speed rpm : 250  
Rack travel in mm : 5.10...5.30  
Rack travel in mm : 2.00  
Speed rpm : 310...350

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 500  
Rack travel in m: 12.10...12.20  
2nd speed rpm : 675  
Rack travel in m: 12.60...12.70  
3rd speed rpm : 800  
Rack travel in m: 13.20...13.40  
4th speed rpm : 980  
Rack travel in m: 14.10...14.30

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 980  
Pressure hPa : 1500  
Rack travel mm : 13.70...13.80

Measurement  
Speed 1/min : 980

1st pressure hPa : -  
Rack travel in m: 8.20...8.40  
2nd pressure hPa : 530  
Rack travel in m: 10.80...10.90  
3rd pressure hPa : 290  
Rack travel in m: 9.10...9.30

#### FUEL DELIVERY CHARACTERISTICS

1st version

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Aneroid pressure h: 1500  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 260.0...264.0  
1000 s: (257.0...267.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 600  
Del. quantity cm<sup>3</sup>/ : 143.0...145.0  
1000 s: (140.0...148.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.70  
Speed rpm : 1030...1040

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.10...5.30

Remarks:

:

## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : MB 9,6 s  
 Edition : 03.05.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 402 646 950

Injection pump  
 Pump designation : PE6P120A320LS7837  
 EP type number : 0 412 626 842  
 Governor  
 Governor design. : RQ300/950PA993-2  
 Governor no. : 0 421 801 590

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 250.0  
 Rated speed : 1900

### TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...<sup>^</sup>42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

### BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 14.70...14.90

Del. quantity cm<sup>3</sup>/ : 23.3...23.5

100 s: (23.0...23.8)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

### GUIDE SLEEVE POSITION

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

### FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del. quantity : 233.0...235.0

1000 : (230.0...238.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

### RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.50  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:

Speed rpm : 200  
Minimum rack travel: 7.90  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.40  
2nd speed rpm : 950  
Rack travel in m: 15.50...15.70  
3rd speed rpm : 800  
Rack travel in m: 15.60...15.80

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.70...14.90

Measurement

Speed 1/min : 600  
1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 600  
Rack travel in m: 13.50...13.70  
3rd pressure hPa : 1250  
Rack travel in m: 14.80...15.00 \*  
4th pressure hPa : 1450  
Rack travel in m: 15.40...15.60  
5th pressure hPa : -  
Rack travel in m: 9.30...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800  
Speed rpm : 950

Del.quantity cm3/ : 251.0...254.0  
1000 s: (248.0...257.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del.quantity cm3/ : 250.0...254.0  
1000 s: (247.0...257.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 135.0...137.0  
1000 s: (132.0...140.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 14.50  
Speed rpm : 990...1005

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 240.0...260.0  
1000 s: (236.0...264.0)

Remarks:

:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 i 1  
 Edition : 26.04.91  
 Replaces : 1.7.88  
 Test oil : ISO-4113

Combination no. : 0 402 648 846

Injection pump  
 Pump designation : PE8P120A320LS7815  
 EP type number : 0 412 628 827  
 Governor  
 Governor design. : RGV350...1050PA870-3  
 Governor no. : 0 421 813 700

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM442LA

1st version kW : 368.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 1050

Rack travel in mm : 15.10...15.20

Del.quantity cm<sup>3</sup>/ : 25.8...26.0

100 s: (25.5...26.3)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.2...5.7

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 350  
 travel mm : 1.90...2.10

2nd speed rpm : 700  
 travel mm : 4.10...4.50

3rd speed rpm : 1100  
 travel mm : 7.60...8.00

4th speed rpm : 1200  
 travel mm : 9.50...9.90

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 1050  
Aneroid pressure h : 1500  
Del.quantity : 258.0...260.0  
1000 : (255.0...263.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 114...122

#### Testing:

1st rack travel in: 14.10  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 64...72

#### Testing:

Speed rpm : 200  
Minimum rack travel: 7.70  
Speed rpm : 350  
Rack travel in mm : 5.20...5.40

#### CONSTANT REGULATION

Speed rpm : 350...600

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1050  
Rack travel in m: 15.10...15.20  
2nd speed rpm : 1000  
Rack travel in m: 15.30...15.50  
3rd speed rpm : 930  
Rack travel in m: 15.50...15.70

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.50...14.70

#### Measurement

Speed 1/min : 600

1st pressure hPa : 330  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 600

Rack travel in m: 13.10...13.30  
3rd pressure hPa : 1260  
Rack travel in m: 14.70...14.90  
4th pressure hPa : 1400  
Rack travel in m: 15.10...15.30  
5th pressure hPa : -  
Rack travel in m: 8.80...9.10

#### START CUT-OUT

Speed 1/min : 270 (290)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 239.0...241.0  
1000 s: (236.0...244.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 266.0...269.0  
1000 s: (263.0...272.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 194.0...196.0  
1000 s: (191.0...199.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than  
full load rack tr: 14.10  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 260.0...280.0  
1000 s: (256.0...284.0)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 k 1  
 Edition : 24.04.91  
 Replaces : 23.11.90  
 Test oil : ISO-4113

Combination no. : 0 402 648 881

Injection pump  
 Pump designation : PE8P120A320LS7816  
 EP type number : 0 412 628 829  
 Governor  
 Governor design. : RQV300...950PA797-13  
 Governor no. : 0 421 813 841

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 353.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 14.60...14.80

Del.quantity cm<sup>3</sup>/ : 25.4...25.6

100 s: (25.1...25.9)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.9...6.5

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.10...1.40

2nd speed rpm : 700  
 travel mm : 5.50...6.00

3rd speed rpm : 1100  
 travel mm : 8.30...8.80

4th speed rpm : 1090  
 travel mm : 9.70...10.20

5th speed rpm : 1190  
 travel mm : 11.00...12.00

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1000

Rack travel in mm : 16.20...18.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 1000  
Del.quantity : 254.0...256.0  
1000 : (251.0...259.0)  
Spread cm<sup>3</sup> : 6.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 120...128

Testing:  
1st rack travel in: 14.20  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1080...1110  
4th rack travel in: 1150  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack trave: 7.80  
Speed rpm : 300  
Rack travel in mm : 5.90...6.50

CONSTANT REGULATION  
Speed rpm : 300...500

TORQUE CONTROL  
Dimension a mm : 0.30  
2nd speed rpm : 950  
Rack travel in m: 15.20...15.40  
3rd speed rpm : 800  
Rack travel in m: 15.50...15.70

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.60...14.80

Measurement  
Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 12.00...12.20  
2nd pressure hPa : 700  
Rack travel in m: 13.80...14.00

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3rd pressure hPa : 1200  
Rack travel in m: 14.80...15.00  
4th pressure hPa : 1500  
Rack travel in m: 15.50...15.70  
5th pressure hPa : -  
Rack travel in m: 10.20...10.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1600  
Speed rpm : 950  
Del.quantity cm<sup>3</sup>/ : 270.0...273.0  
1000 s: (267.0...276.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1600  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 270.0...274.0  
1000 s: (267.0...277.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 145.0...147.0  
1000 s: (142.0...150.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 14.20  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...260.0  
1000 s: (236.0...264.0)

Remarks: :

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 a22  
 Edition : 24.04.91  
 Replaces : 12.4.90  
 Test oil : ISO-4113

Combination no. : 0 402 648 890

Injection pump  
 Pump designation : PE8P120A320LS7801  
 EP type number : 0 412 628 806  
 Governor  
 Governor design. : RQ300/950PA932-4  
 Governor no. : 0 421 801 533

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 269.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 500

Rack travel in mm : 14.00...14.20

Del.quantity cm3/ : 20.1...20.3

100 s: (19.8...20.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.4

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 500

Aneroid pressure h: 800

Del.quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm3 : 5.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.90  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1060...1090  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.2

Testing:

Speed rpm : 200  
Minimum rack trave: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.00...6.40  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.75  
2nd speed rpm : 950  
Rack travel in m: 12.90...13.10  
3rd speed rpm : 800  
Rack travel in m: 14.20...14.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600  
1st pressure hPa : 350  
Rack travel in m: 11.80...12.00  
2nd pressure hPa : 500  
Rack travel in m: 13.30...13.60  
3rd pressure hPa : 950  
Rack travel in m: 14.10...14.20 \*  
4th pressure hPa : -  
Rack travel in m: 10.60...11.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1150  
Speed rpm : 950  
Del.quantity cm3/ : 190.0...193.0  
1000 s: (187.0...196.0)

Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1150  
Speed rpm : 750  
Del.quantity cm3/ : 216.0...219.0  
1000 s: (213.0...222.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 138.0...140.0  
1000 s: (135.0...143.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 11.90  
Speed rpm : 990...1000

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 12,8 o  
 Edition : 26.04.91  
 Replaces : 15.11.90  
 Test oil : ISO-4113

Combination no. : 0 402 648 893

Injection pump  
 Pump designation : PE8P120A320LS7835  
 EP type number : 0 412 628 847  
 Governor  
 Governor design. : RQ300/950PA971-2  
 Governor no. : 0 421 801 548

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM402 A

1st version kW : 280.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 14.20...14.40

Del.quantity cm<sup>3</sup>/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm<sup>3</sup> : 6.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.70  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1070...1100  
4th rack travel in: 1150  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.50  
2nd speed rpm : 950  
Rack travel in m: 13.70...13.90  
3rd speed rpm : 800  
Rack travel in m: 14.60...14.80

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.20...14.40

Measurement

Speed 1/min : 600  
1st pressure hPa : 250  
Rack travel in m: 9.40...9.60  
2nd pressure hPa : 650  
Rack travel in m: 13.00...13.20  
3rd pressure hPa : 1200  
Rack travel in m: 14.30...14.50 \*  
4th pressure hPa : -  
Rack travel in m: 8.60...8.90

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500  
Speed rpm : 950  
Del. quantity cm<sup>3</sup>/ : 216.0...219.0  
1000 s: (213.0...222.0)

Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del. quantity cm<sup>3</sup>/ : 234.0...238.0  
1000 s: (231.0...241.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.70  
Speed rpm : 990...1005

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 12,8 o 1  
 Edition : 26.04.91  
 Replaces : 23.11.90  
 Test oil : ISO-4113

Combination no. : 0 402 648 894

Injection pump  
 Pump designation : PE8P120A320LS7835  
 EP type number : 0 412 628 847  
 Governor  
 Governor design. : RQV300...950PA797-18  
 Governor no. : 0 421 813 886

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM402 A

1st version kW : 280.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 14.20...14.40

Del.quantity cm<sup>3</sup>/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.00...1.50

2nd speed rpm : 567  
 travel mm : 4.40...4.90

3rd speed rpm : 780  
 travel mm : 6.10...6.60

4th speed rpm : 1009  
 travel mm : 8.30...8.80

5th speed rpm : 1092  
 travel mm : 9.80...10.30

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 980

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 1000  
Del. quantity : 225.0...227.0  
1000 : (222.0...230.0)  
Spread cm<sup>3</sup> : 6.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 122...130

Testing:  
1st rack travel in: 12.70  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1070...1100  
4th rack travel in: 1250  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Control lever  
position degrees: 80...88

Testing:  
Speed rpm : 200  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION  
Speed rpm : 250...360

TORQUE CONTROL  
Dimension a mm : 0.50  
2nd speed rpm : 950  
Rack travel in m: 13.70...13.90  
3rd speed rpm : 800  
Rack travel in m: 14.60...14.80

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.20...14.40

Measurement  
Speed 1/min : 600

1st pressure hPa : 250  
Rack travel in m: 9.40...9.60  
2nd pressure hPa : 650  
Rack travel in m: 13.00...13.20

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3rd pressure hPa : 1200  
Rack travel in m: 14.30...14.50 \*  
4th pressure hPa : -  
Rack travel in m: 8.60...8.90

#### START CUT-OUT

Speed 1/min : 240 (260)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1500  
Speed rpm : 950  
Del. quantity cm<sup>3</sup>/ : 216.0...219.0  
1000 s: (213.0...222.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del. quantity cm<sup>3</sup>/ : 234.0...238.0  
1000 s: (231.0...241.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.70  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 210.0...230.0  
1000 s: (206.0...234.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 12,8 o 2  
 Edition : 26.04.91  
 Replaces : 27.2.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 895  
 Injection pump  
 Pump designation : PE8P120A320LS7835  
 EP type number : 0 412 628 847  
 Governor  
 Governor design. : RQ300/1050PA972-1  
 Governor no. : 0 421 801 545

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM402 A

1st version kW : 280.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 14.80...15.00

Del.quantity cm3/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm3 : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm3/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm3 : 0.6

100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm3 : 6.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.30  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1350  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.50  
2nd speed rpm : 950  
Rack travel in m: 14.30...14.50  
3rd speed rpm : 800  
Rack travel in m: 15.20...15.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.80...15.00

Measurement

Speed 1/min : 600  
1st pressure hPa : 250  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 650  
Rack travel in m: 13.60...13.80  
3rd pressure hPa : 1200  
Rack travel in m: 14.90...15.00 \*  
4th pressure hPa : -  
Rack travel in m: 9.00...9.30

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500  
Speed rpm : 1050  
Del.quantity cm3/ : 214.0...217.0  
1000 s: (211.0...220.0)

Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del.quantity cm3/ : 232.0...236.0  
1000 s: (229.0...239.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.30  
Speed rpm : 1090...1105

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 v 2  
 Edition : 26.04.91  
 Replaces : 27.2.91  
 Test oil : ISO-4113

Combination no. : 0 402 648 899

Injection pump  
 Pump designation : PE8P120A320LS7839  
 EP type number : 0 412 628 849  
 Governor  
 Governor design. : RQ300/950PA971-5  
 Governor no. : 0 421 801 559

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del. quantity cm<sup>3</sup>/ : 25.2...25.4

100 s: (24.9...25.7)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.2...5.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

^ 100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 1050

Del. quantity : 252.0...254.0

1000 : (249.0...257.0)

Spread cm<sup>3</sup> : 6.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.70

Speed rpm : 990...1005

2nd rack travel in: 4.00

Speed rpm : 1075...1105

4th rack travel in: 1150

Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring

Speed rpm : 300

Rack travel in mm : 5.5

Testing:

Speed rpm : 200

Minimum rack travel: 6.80

Speed rpm : 300

Rack travel in mm : 5.20...5.80

Rack travel in mm : 2.00

Speed rpm : 370...410

TORQUE CONTROL

Dimension a mm : ?

2nd speed rpm : 950

Rack travel in m: 15.70...15.90

3rd speed rpm : 800

Rack travel in m: 16.00...16.20

Aneroid/Altitude

Compensator Test

1st version

Setting

Speed rpm : 600

Pressure hPa : 1050

Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600

1st pressure hPa : 290

Rack travel in m: 8.70...8.90

2nd pressure hPa : 780

Rack travel in m: 13.20...13.40

3rd pressure hPa : 1200

Rack travel in m: 14.30...14.50

4th pressure hPa : 1380

Rack travel in m: 15.10...15.30

5th pressure hPa : -

Rack travel in m: 8.40...8.70

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800

Speed rpm : 950

Del.quantity cm<sup>3</sup>/ : 290.0...293.0

1000 s: (287.0...296.0)

Spread cm<sup>3</sup> : 8.00

1000 s: (12.0)

Aneroid pressure h: 1800

Speed rpm : 800

Del.quantity cm<sup>3</sup>/ : 295.0...299.0

1000 s: (292.0...302.0)

Spread cm<sup>3</sup> : 8.00

1000 s: (12.0)

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 139.0...141.0

1000 s: (136.0...144.0)

Spread cm<sup>3</sup> : 8.00

1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 14.70

Speed rpm : 990...1005

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 u  
 Edition : 03.05.91  
 Replaces : 7.1.91  
 Test oil : ISO-4113

Combination no. : 0 402 648 900

Injection pump  
 Pump designation : PE8P120A320LS7840  
 EP type number : 0 412 628 850  
 Governor  
 Governor design. : RQ300/1050PA972-4  
 Governor no. : 0 421 801 560

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 250.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 13.30...13.50

Del. quantity cm<sup>3</sup>/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.6

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del. quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm<sup>3</sup> : 6.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 11.90  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1250  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 7.90  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.65  
2nd speed rpm : 1050  
Rack travel in m: 12.90...13.10  
3rd speed rpm : 800  
Rack travel in m: 14.20...14.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.30...13.50

Measurement

Speed 1/min : 600  
1st pressure hPa : 300  
Rack travel in m: 11.10...11.30  
2nd pressure hPa : 650  
Rack travel in m: 12.60...12.80  
3rd pressure hPa : 1050  
Rack travel in m: 13.40...13.50 \*  
4th pressure hPa : 1250  
Rack travel in m: 14.00...14.20  
5th pressure hPa : -  
Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500  
Speed rpm : 1050

Del.quantity cm3/ : 194.0...197.0  
1000 s: (191.0...200.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del.quantity cm3/ : 220.0...224.0  
1000 s: (217.0...227.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 123.0...125.0  
1000 s: (120.0...128.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.90  
Speed rpm : 1090...1105

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14.7 u 1  
 Edition : 03.05.91  
 Replaces : 25.1.91  
 Test oil : ISO-4113

Combination no. : 0 402 648 901

Injection pump  
 Pump designation : PE8P120A320LS7840  
 EP type number : 0 412 628 850  
 Governor  
 Governor design. : RQV300...1050PA797-  
 21  
 Governor no. : 0 421 813 894

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 250.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 13.30...13.50

Del. quantity cm<sup>3</sup>/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.0...6.6

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.10...1.60

2nd speed rpm : 470  
 travel mm : 3.00...3.50

3rd speed rpm : 830  
 travel mm : 5.90...6.40

4th speed rpm : 1110  
 travel mm : 8.20...8.70

5th speed rpm : 1183  
 travel mm : 9.80...10.30

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600  
Aneroid pressure h: 900  
Del.quantity : 206.0...208.0  
1000 : (203.0...211.0)  
Spread cm<sup>3</sup> : 6.00  
1000 : (9.00)

RATED SPEED

1st version

Control lever  
position degrees: 116...124

Testing:

1st rack travel in: 11.90  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 84...92

Testing:

Speed rpm : 200  
Minimum rack trave: 7.90  
Speed rpm : 300  
Rack travel in mm : 6.10...6.70

CONSTANT REGULATION

Speed rpm : 300...450

TORQUE CONTROL

Dimension a mm : 0.20  
2nd speed rpm : 1050  
Rack travel in m: 12.90...13.10  
3rd speed rpm : 800  
Rack travel in m: 14.20...14.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 13.50...13.70

Measurement

Speed 1/min : 600

1st pressure hPa : 440  
Rack travel in m: 11.30...11.50  
2nd pressure hPa : 550

F16

Rack travel in m: 12.30...12.50  
3rd pressure hPa : 1050  
Rack travel in m: 13.60...13.70 \*  
4th pressure hPa : 1120  
Rack travel in m: 14.10...14.30  
5th pressure hPa : -  
Rack travel in m: 10.40...10.70

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 194.0...197.0  
1000 s: (191.0...200.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 220.0...224.0  
1000 s: (217.0...227.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 123.0...125.0  
1000 s: (120.0...128.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 11.90  
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 180.0...200.0  
1000 s: (176.0...204.0)

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 v  
 Edition : 24.04.91  
 Replaces : 20.12.90  
 Test oil : ISO-4113

Combination no. : 0 402 648 902

Injection pump  
 Pump designation : PE8P120A320LS7839  
 EP type number : 0 412 628 849  
 Governor  
 Governor design. : RQ300/1050PA972-5  
 Governor no. : 0 421 801 564

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 15.10...15.30

Del.quantity cm<sup>3</sup>/ : 25.2...25.4

100 s: (24.9...25.7)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 1050

Del.quantity : 252.0...254.0

1000 : (249.0...257.0)

Spread cm<sup>3</sup> : 6.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 15.00  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1160...1190  
4th rack travel in: 1250  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 1050  
Rack travel in m: 16.00...16.20  
3rd speed rpm : 800  
Rack travel in m: 16.80...17.00

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1050  
Rack travel mm : 15.10...15.30

Measurement

Speed 1/min : 600  
1st pressure hPa : 290  
Rack travel in m: 9.70...9.90  
2nd pressure hPa : 780  
Rack travel in m: 14.20...14.40  
3rd pressure hPa : 1200  
Rack travel in m: 15.20...15.40 \*  
4th pressure hPa : 1380  
Rack travel in m: 16.10...16.30  
5th pressure hPa : -  
Rack travel in m: 9.30...9.60

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800  
Speed rpm : 1050

Del.quantity cm3/ : 274.0...277.0  
1000 s: (271.0...280.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del.quantity cm3/ : 295.0...299.0  
1000 s: (292.0...302.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 139.0...141.0  
1000 s: (136.0...144.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 15.00  
Speed rpm : 1090...1105

Remarks:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 w  
 Edition : 26.04.91  
 Replaces : 28.3.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 906  
 Injection pump  
 Pump designation : PE8P120A320LS7838  
 EP type number : 0 412 628 848  
 Governor  
 Governor design. : RQ300/1050PA972-6  
 Governor no. : 0 421 801 569

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 320.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 14.10...14.30

Del.quantity cm<sup>3</sup>/ : 22.9...23.1

100 s: (22.6...23.4)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 1020

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 229.0...231.0

1000 : (226.0...234.0)

Spread cm<sup>3</sup> : 6.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 1020

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.50  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1250  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 1050  
Rack travel in m: 14.50...14.70  
3rd speed rpm : 800  
Rack travel in m: 15.00...15.20

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.10...14.30

Measurement

Speed 1/min : 600  
1st pressure hPa : 350  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 700  
Rack travel in m: 13.00...13.20  
3rd pressure hPa : 1200  
Rack travel in m: 14.30...14.50  
4th pressure hPa : 1350  
Rack travel in m: 14.70...14.90  
5th pressure hPa : -  
Rack travel in m: 9.20...9.40

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1600

F20

Speed rpm : 1050  
Del.quantity cm3/ : 226.0...229.0  
1000 s: (223.0...232.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1600  
Speed rpm : 800  
Del.quantity cm3/ : 239.0...243.0  
1000 s: (236.0...246.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 138.0...140.0  
1000 s: (135.0...143.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.50  
Speed rpm : 1090...1105

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 v 1  
 Edition : 26.04.91  
 Replaces : 16.1.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 907  
 Injection pump  
 Pump designation : PE8P120A32OLS7839  
 EP type number : 0 412 628 849  
 Governor  
 Governor design. : RQV300...950PA797-22  
 Governor no. : 0 421 813 909

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 LA

1st version kW : 370.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 15.10...15.30

Del.quantity cm<sup>3</sup>/ : 25.2...25.4

100 s: (24.9...25.7)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.00...1.50

2nd speed rpm : 617  
 travel mm : 5.00...5.50

3rd speed rpm : 780  
 travel mm : 6.10...6.60

4th speed rpm : 1010  
 travel mm : 8.30...8.80

5th speed rpm : 1092  
 travel mm : 9.80...10.30

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 1000  
Del.quantity : 252.0...254.0  
1000 : (249.0...257.0)  
Spread cm<sup>3</sup> : 6.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 15.50  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1075...1105  
4th rack travel in: 1150  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control Lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack trave: 7.80  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION  
Speed rpm : 300...500

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 15.10...15.30

Measurement  
Speed 1/min : 600

1st pressure hPa : 296  
Rack travel in m: 9.70...9.90  
2nd pressure hPa : 760  
Rack travel in m: 14.30...14.50  
3rd pressure hPa : 1200  
Rack travel in m: 15.30...15.50  
4th pressure hPa : 1500  
Rack travel in m: 16.10...16.30

START CUT-OUT

Speed 1/min : 240 (260)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1800  
Speed rpm : 950  
Del.quantity cm<sup>3</sup>/ : 290.0...293.0  
1000 s: (287.0...296.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 295.0...299.0  
1000 s: (292.0...302.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 139.0...141.0  
1000 s: (136.0...144.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 15.50  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 210.0...230.0  
1000 s: (206.0...234.0)

Remarks: :



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 w 1  
 Edition : 26.04.91  
 Replaces : 28.3.91  
 Test oil : ISO-4113  
 Combination no. : 0 402 648 908  
 Injection pump  
 Pump designation : PE8P120A320LS7838  
 EP type number : 0 412 628 848  
 Governor  
 Governor design. : RQV300...950PA797-23  
 Governor no. : 0 421 813 910

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 320.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test Lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 13.80...14.00

Del.quantity cm<sup>3</sup>/ : 22.3...22.5

100 s: (22.0...22.8)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.00...1.50

2nd speed rpm : 617  
 travel mm : 5.00...5.50

3rd speed rpm : 780  
 travel mm : 6.10...6.60

4th speed rpm : 1009  
 travel mm : 8.30...8.80

5th speed rpm : 1092  
 travel mm : 9.80...10.30

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1020

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 900  
Del. quantity : 223.0...225.0  
1000 : (220.0...228.0)  
Spread cm<sup>3</sup> : 6.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 120...128

Testing:  
1st rack travel in: 13.50  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1080...1110  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack trave: 7.80  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION  
Speed rpm : 300...500

TORQUE CONTROL  
Dimension a mm : 0.70  
2nd speed rpm : 950  
Rack travel in m: 14.50...14.70  
3rd speed rpm : 800  
Rack travel in m: 15.20...15.40

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.80...14.00

Measurement  
Speed 1/min : 600

1st pressure hPa : 350  
Rack travel in m: 9.80...10.00  
2nd pressure hPa : 650  
Rack travel in m: 12.80...13.00

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3rd pressure hPa : 1100  
Rack travel in m: 13.90...14.10 \*  
4th pressure hPa : 1350  
Rack travel in m: 14.80...15.00  
5th pressure hPa : -  
Rack travel in m: 9.30...9.50

#### START CUT-OUT

Speed 1/min : 240 (260)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1600  
Speed rpm : 950  
Del. quantity cm<sup>3</sup>/ : 234.0...237.0  
1000 s: (231.0...240.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1600  
Speed rpm : 800  
Del. quantity cm<sup>3</sup>/ : 243.0...247.0  
1000 s: (240.0...250.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 138.0...140.0  
1000 s: (135.0...143.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.50  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 220.0...240.0  
1000 s: (216.0...244.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 u 2  
 Edition : 03.05.91  
 Replaces : 22.3.91  
 Test oil : ISO-4113

Combination no. : 0 402 648 909

Injection pump  
 Pump designation : PE8P120A320LS7840  
 EP type number : 0 412 628 850  
 Governor  
 Governor design. : RQ300/950PA971-6  
 Governor no. : 0 421 801 575

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 250.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 13.30...13.50

Del.quantity cm<sup>3</sup>/ : 20.6...20.8

100 s: (20.3...21.1)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 206.0...208.0

1000 : (203.0...211.0)

Spread cm<sup>3</sup> : 6.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.40  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1070...1100  
4th rack travel in: 1150  
Speed rpm : 0.00...1.50

LOW IDLE f

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 7.60  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 950  
Rack travel in m: 13.40...13.60  
3rd speed rpm : 800  
Rack travel in m: 14.20...14.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.30...13.50

Measurement

Speed 1/min : 600  
1st pressure hPa : 300  
Rack travel in m: 11.10...11.30  
2nd pressure hPa : 650  
Rack travel in m: 12.60...12.80  
3rd pressure hPa : 1050  
Rack travel in m: 13.40...13.60 \*  
4th pressure hPa : 1250  
Rack travel in m: 14.00...14.20  
5th pressure hPa : -  
Rack travel in m: 10.60...10.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500  
Speed rpm : 950

Del. quantity cm<sup>3</sup>/ : 204.0...207.0  
1000 s: (201.0...210.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del. quantity cm<sup>3</sup>/ : 220.0...224.0  
1000 s: (217.0...227.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 123.0...125.0  
1000 s: (120.0...128.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.40  
Speed rpm : 990...1005

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 14,7 u 3  
 Edition : 03.05.91  
 Replaces : 1.3.91  
 Test oil : ISO-4113

Combination no. : 0 402 648 910

Injection pump  
 Pump designation : PE8P120A320LS7840  
 EP type number : 0 412 628 850  
 Governor  
 Governor design. : RGV300...950PA797-26  
 Governor no. : 0 421 813 915

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442 A

1st version kW : 250.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00x2.50x1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600  
 Rack travel in mm : 13.30...13.50

Del. quantity cm<sup>3</sup>/ : 20.6...20.8  
 100 s: (20.3...21.1)

Spread cm<sup>3</sup> : 0.6  
 100 s: (0.9)

2nd speed rpm : 300.0  
 Rack travel in mm : 6.2...6.8  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**  
 1st speed rpm : 300  
 travel mm : 1.00...1.50  
 2nd speed rpm : 617  
 travel mm : 5.00...5.50  
 3rd speed rpm : 780  
 travel mm : 6.10...6.60  
 4th speed rpm : 1009  
 travel mm : 8.30...8.80  
 5th speed rpm : 1092  
 travel mm : 9.80...10.30

**GUIDE SLEEVE POSITION**  
 Control-lever position  
 Degree: -1  
 Speed rpm : 1020  
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 900  
Del.quantity : 206.0...208.0  
1000 : (203.0...211.0)  
Spread cm<sup>3</sup> : 6.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 12.40  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1070...1100  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 82...90

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.60  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION  
Speed rpm : 300...450

TORQUE CONTROL  
Dimension a mm : 0.80  
2nd speed rpm : 950  
Rack travel in m: 13.40...13.60  
3rd speed rpm : 800  
Rack travel in m: 14.20...14.40

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.30...13.50

Measurement  
Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 11.10...11.30  
2nd pressure hPa : 650  
Rack travel in m: 12.60...12.80

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3rd pressure hPa : 1050  
Rack travel in m: 13.40...13.60 \*  
4th pressure hPa : 1250  
Rack travel in m: 14.00...14.20  
5th pressure hPa : -  
Rack travel in m: 10.60...10.80

#### START CUT-OUT

Speed 1/min : 240 (260)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1500  
Speed rpm : 950  
Del.quantity cm<sup>3</sup>/ : 204.0...207.0  
1000 s: (201.0...210.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 220.0...224.0  
1000 s: (217.0...227.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 123.0...125.0  
1000 s: (120.0...128.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.40  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 210.0...230.0  
1000 s: (206.0...234.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 12,8 o 3  
 Edition : 26.04.91  
 Replaces : 19.3.91  
 Test oil : ISO-4113

Combination no. : 0 402 648 914

Injection pump  
 Pump designation : PE8P120A320LS7835  
 EP type number : 0 412 628 847  
 Governor  
 Governor design. : RQV300...1050PA797-30  
 Governor no. : 0 421 813 921

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM402 A

1st version kW : 280.0  
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values-\_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)

Rack travel in mm : 20.00...21.00

Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 600

---

Rack travel in mm : 14.80...15.00

---

Del.quantity cm<sup>3</sup>/ : 22.5...22.7  
 100 s: (22.2...23.0)

---

Spread cm<sup>3</sup> : 0.6  
 100 s: (0.9)

---

2nd speed rpm : 300.0  
 Rack travel in mm : 6.2...6.8  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)

---

Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 0.50...1.00

2nd speed rpm : 625  
 travel mm : 4.80...5.30

3rd speed rpm : 830  
 travel mm : 5.90...6.40

4th speed rpm : 1108  
 travel mm : 8.10...8.60

5th speed rpm : 1190  
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 1130

Rack travel in mm : 16.50...18.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600  
Aneroid pressure h: 1000  
Del. quantity : 225.0...227.0  
1000 : (222.0...230.0)  
Spread cm3 : 6.00  
1000 : (9.00)

RATED SPEED

1st version

Control lever  
position degrees: 118...126

Testing:

1st rack travel in: 13.30  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 82...90

Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION

Speed rpm : 300...500

TORQUE CONTROL

Dimension a mm : 0.60  
2nd speed rpm : 1050  
Rack travel in m: 14.30...14.50  
3rd speed rpm : 800  
Rack travel in m: 15.20...15.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.90...15.00

Measurement

Speed 1/min : 600  
1st pressure hPa : 250  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 650

G02

Rack travel in m: 13.60...13.80  
3rd pressure hPa : 1200  
Rack travel in m: 14.90...15.00 \*  
4th pressure hPa : -  
Rack travel in m: 9.00...9.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500  
Speed rpm : 1050  
Del. quantity cm3/ : 214.0...217.0  
1000 s: (211.0...220.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del. quantity cm3/ : 232.0...236.0  
1000 s: (229.0...239.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 13.30  
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : MB 12,8 o 4  
 Edition : 26.04.91  
 Replaces : 19.3.91  
 Test oil : ISO-4113

Combination no. : 0 402 648 915

Injection pump  
 Pump designation : PE8P120A320LS7835  
 EP type number : 0 412 628 847  
 Governor  
 Governor design. : RQ300/1050PA993-1  
 Governor no. : 0 421 801 582

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM402 A

1st version kW : 280.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 14.80...15.00

Del. quantity cm<sup>3</sup>/ : 22.5...22.7

100 s: (22.2...23.0)

Spread cm<sup>3</sup> : 0.6

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 6.2...6.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del. quantity : 225.0...227.0

1000 : (222.0...230.0)

Spread cm<sup>3</sup> : 6.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.30  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1350  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:

Speed rpm : 200  
Minimum rack travel: 7.80  
Speed rpm : 300  
Rack travel in mm : 6.20...6.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.50  
2nd speed rpm : 1050  
Rack travel in m: 14.30...14.50  
3rd speed rpm : 800  
Rack travel in m: 15.20...15.40

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.80...15.00

Measurement

Speed 1/min : 600  
1st pressure hPa : 250  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 650  
Rack travel in m: 13.60...13.80  
3rd pressure hPa : 1200  
Rack travel in m: 14.90...15.00 \*  
4th pressure hPa : -  
Rack travel in m: 9.00...9.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

GD4

Aneroid pressure h: 1500  
Speed rpm : 1050  
Del.quantity cm3/ : 214.0...217.0  
1000 s: (211.0...220.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del.quantity cm3/ : 232.0...236.0  
1000 s: (229.0...239.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.30  
Speed rpm : 1090...1105

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 210.0...230.0  
1000 s: (206.0...234.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 18,3 L 3  
 Edition : 24.04.91  
 Replaces : 1.2.90  
 Test oil : ISO-4113  
 :  
 Combination no. : 0 402 649 810  
 Injection pump  
 Pump designation : PE10P120A320LS7809  
 EP type number : 0 412 629 800  
 Governor  
 Governor design. : RGV350...1050PA870-6  
 Governor no. : 0 421 813 766

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM443 LA

1st version kW : 401.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 130...150

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 10- 9- 4- 1- 8- 7-  
 6- 3- 5- 2

Phasing : 0-45-72-117-144-189-  
 216-261-288-333

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 10

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 14.30...14.50

Del.quantity cm<sup>3</sup>/ : 21.0...21.4

100 s: (20.7...21.7)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 6.2...6.8

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 350  
 travel mm : 1.90...2.10

2nd speed rpm : 700  
 travel mm : 4.10...4.50

3rd speed rpm : 1100  
 travel mm : 7.60...8.00

4th speed rpm : 1200  
 travel mm : 9.50...9.90

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1100

Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600  
Aneroid pressure h: 750  
Del.quantity : 210.0...214.0  
1000 : (207.0...217.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

RATED SPEED

1st version  
Control lever  
position degrees: 114...122

Testing:  
1st rack travel in: 14.10  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 64...72

Testing:  
Speed rpm : 200  
Minimum rack trave: 8.60  
Speed rpm : 350  
Rack travel in mm : 6.20...6.80

CONSTANT REGULATION  
Speed rpm : 300...400

TORQUE CONTROL  
Dimension a mm : 0.40  
2nd speed rpm : 1050  
Rack travel in m: 15.10...15.30  
3rd speed rpm : 800  
Rack travel in m: 15.50...15.70

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 14.30...14.50

Measurement  
Speed 1/min : 600

1st pressure hPa : 400  
Rack travel in m: 11.70...11.90  
2nd pressure hPa : 550  
Rack travel in m: 13.20...13.40  
3rd pressure hPa : 960  
Rack travel in m: 14.40...14.50 \*

4th pressure hPa : 1100  
Rack travel in m: 14.80...15.00  
5th pressure hPa : -  
Rack travel in m: 11.10...11.40

START CUT-OUT

Speed 1/min : 270 (290)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1300  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 224.0...226.0  
1000 s: (221.0...229.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1300  
Speed rpm : 850  
Del.quantity cm<sup>3</sup>/ : 232.0...236.0  
1000 s: (229.0...239.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1300  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 168.0...170.0  
1000 s: (165.0...173.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 132.0...136.0  
1000 s: (129.0...139.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (-)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 14.10  
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 240.0...260.0  
1000 s: (236.0...264.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 9,0 k 1  
Edition : 24.04.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 676 810  
Injection pump  
Pump designation : PE6P120A32ORS7138  
EP type number : 0 412 626 822  
Governor  
Governor design. : RSV350...1050P1A512-  
3  
Governor no. : 0 421 833 334  
Customer-spec. information  
Customer : SCANIA  
Engine : DS9 60

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025  
Inlet press., bar : 1.50  
Test nozzle holder  
assembly : 1 688 901 019  
Opening  
pressure, bar : 207...210  
Orifice plate  
diameter mm : 0,8  
Test lines : 1 680 750 015  
Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X600  
(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
Prestroke mm : 4.40...4.50  
: (4.35...4.55)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)  
Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700  
Rack travel in mm : 12.20...12.30  
Del. quantity cm<sup>3</sup>/ : 16.5...16.7  
100 s: (16.2...17.0)  
Spread cm<sup>3</sup> : 0.6  
100 s: (0.9)

2nd speed rpm : 350.0  
Rack travel in mm : 4.5...4.9  
Del. quantity cm<sup>3</sup>/ : 2.0...2.4  
100 s: (-)  
Spread cm<sup>3</sup> : 0.3  
100 s: (0.6)

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 6.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Del. quantity : 165.0...167.0  
1000 : (162.0...170.0)  
Spread cm<sup>3</sup> : 6.00  
1000 : (9.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 109...117

Testing:  
1st rack travel in: 11.20  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00

Speed rpm : 1140...1170  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 76...84  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 4.1

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 350  
Rack travel in mm : 4.50...4.70  
Rack travel in mm : 2.00  
Speed rpm : 445...505

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.20  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 270.0...320.0  
1000 s: (-)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 350  
Rack travel in mm : 4.50...4.70

#### Remarks:

:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO  
diaphragm.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 14,7 g 9  
 Edition : 26.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 678 814  
 Injection pump  
 Pump designation : PE8P120A320LS7801-2  
 EP type number : 0 412 628 825  
 Governor  
 Governor design. : RSV350...1050POA535-4  
 Governor no. : 0 421 833 352

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442LA

1st version kW : 260.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (4.15...5.35)

Rack travel in mm : 9.00...12.00

Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

## BASIC SETTING

1st speed rpm : 500

Rack travel in mm : 13.90...14.10

Del. quantity cm<sup>3</sup>/ : 20.1...20.3

100 s : (19.8...20.6)

Spread cm<sup>3</sup> : 0.5

100 s : (0.9)

2nd speed rpm : 350.0

Rack travel in mm : 5.6...5.8

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s : (1.3...2.5)

Spread cm<sup>3</sup> : 0.8

100 s : (1.2)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 500

Aneroid pressure h: 700

Del. quantity : 201.0...203.0

1000 : (198.0...206.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 90...98

Testing:  
1st rack travel in: 11.50  
Speed rpm : 1070...1080  
2nd rack travel in: 4.00  
Speed rpm : 1140...1158  
4th rack travel in: 1400  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever  
position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.7

Testing:  
Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 350  
Rack travel in mm : 5.60...5.80  
Rack travel in mm : 2.00  
Speed rpm : 360...420

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1030  
Rack travel in m: 12.50...12.70  
2nd speed rpm : 700  
Rack travel in m: 14.20...14.40  
3rd speed rpm : 900  
Rack travel in m: 13.40...13.60

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 13.90...14.10

Measurement  
Speed 1/min : 600

1st pressure hPa : 400  
Rack travel in m: 12.30...12.50  
2nd pressure hPa : 500  
Rack travel in m: 13.20...13.40  
3rd pressure hPa : 925  
Rack travel in m: 14.00...14.10 \*  
4th pressure hPa : -  
Rack travel in m: 10.80...11.10

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1100  
Speed rpm : 1030  
Del. quantity cm<sup>3</sup>/ : 181.0...184.0  
1000 s: (178.0...187.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1100  
Speed rpm : 700  
Del. quantity cm<sup>3</sup>/ : 213.0...217.0  
1000 s: (210.0...220.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 143.0...145.0  
1000 s: (140.0...148.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (-)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.50  
Speed rpm : 1070...1080

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 180.0...200.0  
1000 s: (176.0...204.0)

Remarks:

:

\* Increase in control-rod travel with respect to setting at least 0.1 mm



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g10  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 678 815  
 Injection pump  
 Pump designation : PE8P120A320LS7801-1  
 EP type number : 0 412 628 818  
 Governor  
 Governor design. : RSV650...1200POA535  
 Governor no. : 0 421 833 357

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442A

1st version kW : 245.0  
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness : 8.00X2.50X1000  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (4.15...5.35)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 12.20...12.30

Del.quantity cm<sup>3</sup>/ : 17.0...17.2

100 s: (16.7...17.5)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 4.0...4.6

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 170.0...172.0

1000 : (167.0...175.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever  
position degrees: 92...100

Testing:  
1st rack travel in: 11.00  
Speed rpm : 1215...1225  
2nd rack travel in: 4.00  
Speed rpm : 1249...1267  
4th rack travel in: 1500  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 71...79  
Setting point w/out bumper spring  
Speed rpm : 650  
Rack travel in mm : 4.3

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 650  
Rack travel in mm : 4.00...4.60  
Rack travel in mm : 2.00  
Speed rpm : 660...720

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180  
Rack travel in m: 12.20...12.30  
2nd speed rpm : 1000  
Rack travel in m: 12.40...12.60  
3rd speed rpm : 900  
Rack travel in m: 12.80...13.00  
4th speed rpm : 600  
Rack travel in m: 13.50...13.70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 900  
Del.quantity cm<sup>3</sup>/ : 184.0...187.0  
1000 s: (181.0...190.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 195.0...199.0  
1000 s: (192.0...202.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00  
Speed rpm : 1215...1225

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 170.0...190.0  
1000 s: (166.0...194.0)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 g11  
 Edition : 03.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 678 815  
 Injection pump  
 Pump designation : PE8P120A320LS7801-1  
 EP type number : 0 412 628 818  
 Governor  
 Governor design. : RSV650...1200POA826-  
 1  
 Governor no. : 0 421 833 357

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442A

1st version kW : 245.0  
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (4.15...5.35)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1180

Rack travel in mm : 12.20...12.30

Del.quantity cm<sup>3</sup>/ : 17.0...17.2

100 s: (16.7...17.5)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 4.0...4.6

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1180

Del.quantity : 170.0...172.0

1000 : (167.0...175.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control Lever  
position degrees: 92...100

Testing:

1st rack travel in: 11.20  
Speed rpm : 1215...1225  
2nd rack travel in: 4.00  
Speed rpm : 1249...1267  
4th rack travel in: 1500  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever  
position degrees: 71...79  
Setting point w/out bumper spring  
Speed rpm : 650  
Rack travel in mm : 4.3

Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 650  
Rack travel in mm : 4.00...4.60  
Rack travel in mm : 2.00  
Speed rpm : 660...720

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1180  
Rack travel in m: 12.20...12.30  
2nd speed rpm : 1000  
Rack travel in m: 12.40...12.60  
3rd speed rpm : 900  
Rack travel in m: 12.80...13.00  
4th speed rpm : 600  
Rack travel in m: 13.50...13.70

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900  
Del.quantity cm3/ : 184.0...187.0  
1000 s: (181.0...190.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Speed rpm : 600  
Del.quantity cm3/ : 195.0...199.0  
1000 s: (192.0...202.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.20  
Speed rpm : 1215...1225

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 170.0...190.0  
1000 s: (166.0...194.0)

Remarks:

:

## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : CUM 5,9 w  
 Edition : 13.05.91  
 Replaces : 15.11.90  
 Test oil : ISO-4113

Combination no. : 0 402 736 806

Injection pump  
 Pump designation : PES6P110A12ORS7213  
 EP type number : 0 412 716 804  
 Governor  
 Governor design. : RQV400...1250PA964K  
 Governor no. : 0 421 815 252

Customer-spec. information  
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 171.5  
 Rated speed : 2500

### TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 115...125

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45  
 : (4.30...4.50)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

### BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 15.80...15.90

Del. quantity cm<sup>3</sup>/ : 16.8...17.0

100 s: (16.5...17.3)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del. quantity cm<sup>3</sup>/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

### GUIDE SLEEVE TRAVEL

1st speed rpm : 325  
 travel mm : 0.70...1.10

2nd speed rpm : 400  
 travel mm : 1.40...1.60

3rd speed rpm : 600  
 travel mm : 2.90...3.30

4th speed rpm : 1300  
 travel mm : 7.20...7.40

5th speed rpm : 1500  
 travel mm : 9.10...9.50

### FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Aneroid pressure h: 1200

Del. quantity : 168.5...170.5

1000 : (165.5...173.5)

Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 56...64

#### Testing:

1st rack travel in: 14.80  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1485...1515  
4th rack travel in: 1600  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 13...21  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.6

#### Testing:

Speed rpm : 275  
Minimum rack travel: 7.20  
Speed rpm : 400  
Rack travel in mm : 5.50...5.70

#### CONSTANT REGULATION

Speed rpm : 325...520

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 15.80...15.90  
2nd speed rpm : 825  
Rack travel in m: 14.60...14.80  
3rd speed rpm : 700  
Rack travel in m: 14.00...14.40

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 1250  
Pressure hPa : 1200  
Rack travel mm : 15.80...15.90

#### Measurement

Speed 1/min : 1250

1st pressure hPa : -  
Rack travel in m: 8.00...8.40  
2nd pressure hPa : 375  
Rack travel in m: 10.00...10.10

3rd pressure hPa : 935  
Rack travel in m: 13.60...14.00

#### START CUT-OUT

Speed 1/min : 300 (310)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1200  
Speed rpm : 825  
Del.quantity cm<sup>3</sup>/ : 178.0...184.0  
1000 s: (175.0...187.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 87.0...91.0  
1000 s: (85.0...93.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than  
full load rack tr: 14.80  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 155.0...175.0  
1000 s: (150.0...180.0)  
Rack travel in mm : 12.40...13.40

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 5.50...5.70  
Del.quantity cm<sup>3</sup>/ : 32.0...38.0  
1000 s: (30.0...40.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

#### Remarks:

: C.D.C. # 3913440  
Start-of-delivery mark 6° cam angle  
after start of delivery cyl. 1

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : CUM 5,9 w 2  
 Edition : 13.05.91  
 Replaces : 19.3.91  
 Test oil : ISO-4113

Combination no. : 0 402 736 811

Injection pump  
 Pump designation : PES6P110A12ORS7213  
 EP type number : 0 412 716 804  
 Governor  
 Governor design. : RQV400...1250PA964-3  
 K  
 Governor no. : 0 421 815 255

Customer-spec. information  
 Customer : C.D.C.

Engine : 6BTA-A

1st version kW : 147.0  
 Rated speed : 2500

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 115...125

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 22...24

Prestroke mm : 4.35...4.45  
 : (4.30...4.50)  
 Rack travel in mm : 10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 1250

Rack travel in mm : 14.80...14.90

Del.quantity cm<sup>3</sup>/ : 15.8...16.0

100 s: (15.5...16.3)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 400.0

Rack travel in mm : 5.5...5.7

Del.quantity cm<sup>3</sup>/ : 3.2...3.8

100 s: (3.0...4.0)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 325  
 travel mm : 0.70...1.10

2nd speed rpm : 400  
 travel mm : 1.40...1.60

3rd speed rpm : 600  
 travel mm : 2.90...3.30

4th speed rpm : 1300  
 travel mm : 7.20...7.40

5th speed rpm : 1500  
 travel mm : 9.10...9.50

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1250  
 Aneroid pressure h: 1200  
 Del.quantity : 158.5...160.5  
 1000 : (155.5...163.5)

Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 56...64

Testing:  
1st rack travel in: 13.80  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1460...1490  
4th rack travel in: 1600  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 12...20  
Setting point w/out bumper spring  
Speed rpm : 400  
Rack travel in mm : 5.6

Testing:  
Speed rpm : 275  
Minimum rack travel: 7.20  
Speed rpm : 400  
Rack travel in mm : 5.50...5.70

#### CONSTANT REGULATION

Speed rpm : 325...520

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 14.80...14.90  
2nd speed rpm : 800  
Rack travel in m: 13.20...13.40

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 1250  
Pressure hPa : 1200  
Rack travel mm : 14.80...14.90

#### Measurement

Speed 1/min : 1250

1st pressure hPa : -  
Rack travel in m: 8.20...8.60  
2nd pressure hPa : 410  
Rack travel in m: 10.00...10.10  
3rd pressure hPa : 755  
Rack travel in m: 13.20...13.60

#### START CUT-OUT

Speed 1/min : 290 (300)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1200  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 156.5...162.5  
1000 s: (153.5...165.5)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 90.0...94.0  
1000 s: (88.0...96.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than  
full load rack tr: 13.80  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (135.0...165.0)  
Rack travel in mm : 11.90...12.90

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 5.50...5.70  
Del.quantity cm<sup>3</sup>/ : 32.0...38.0  
1000 s: (30.0...40.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

#### Remarks:

: C.D.C # 3918321

Start-of-delivery mark = 5.5° after  
start of delivery cyl. 1.



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 11,8 s 2  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 402 746 906

Injection pump  
 Pump designation : PES6P120A720LS7196  
 EP type number : 0 412 726 831  
 Governor  
 Governor design. : RQV450...1050PA985  
 Governor no. : 0 421 813 917

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 h LA

1st version kW : 304.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Rack travel in mm : 19.00...21.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 15.20...15.40

Del. quantity cm<sup>3</sup>/ : 28.4...28.6

100 s: (28.1...28.9)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 450.0

Rack travel in mm : 4.0...4.6

Del. quantity cm<sup>3</sup>/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 450  
 travel mm : 1.10...1.60

2nd speed rpm : 650  
 travel mm : 3.50...4.00

3rd speed rpm : 940  
 travel mm : 5.50...6.00

4th speed rpm : 1107  
 travel mm : 7.30...7.80

5th speed rpm : 1226  
 travel mm : 9.80...10.30

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1150

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h: 950  
Del. quantity : 284.0...286.0  
1000 : (281.0...289.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 113...121

Testing:  
1st rack travel in: 14.40  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 61...69

Testing:  
Speed rpm : 300  
Minimum rack travel: 5.90  
Speed rpm : 450  
Rack travel in mm : 4.00...4.60

CONSTANT REGULATION  
Speed rpm : 450...650

TORQUE CONTROL  
Dimension a mm : 0.60  
2nd speed rpm : 1050  
Rack travel in m: 15.40...15.60  
3rd speed rpm : 900  
Rack travel in m: 15.70...15.90  
4th speed rpm : 800  
Rack travel in m: 16.00...16.20

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 950  
Rack travel mm : 15.20...15.40

Measurement  
Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 12.60...12.80  
2nd pressure hPa : 600

G21

Rack travel in m: 14.50...14.70  
3rd pressure hPa : 1200  
Rack travel in m: 16.30...16.50  
4th pressure hPa : -  
Rack travel in m: 9.80...10.20

#### START CUT-OUT

Speed 1/min : 370 (390)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1600  
Speed rpm : 1050  
Del. quantity cm<sup>3</sup>/ : 280.0...283.0  
1000 s: (277.0...286.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1600  
Speed rpm : 800  
Del. quantity cm<sup>3</sup>/ : 298.0...302.0  
1000 s: (295.0...305.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 145.0...147.0  
1000 s: (142.0...150.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 14.40  
Speed rpm : 1090...1100

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 280.0...300.0  
1000 s: (276.0...304.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : RVI 9,8 n  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 746 907  
 Injection pump  
 Pump designation : PES6P120A32ORS7231  
 EP type number : 0 412 726 844  
 Governor  
 Governor design. : RQV275...1000PA927-1  
 Governor no. : 0 421 813 923

Customer-spec. information  
 Customer : RVI

Engine : MIDR 06-20-45

1st version kW : 249.0  
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.65...4.75  
 : (4.60...4.80)  
 Rack travel in mm : 13.50...14.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 13.90...14.00

Del.quantity cm<sup>3</sup>/ : 24.6...24.8

100 s: (24.3...25.1)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 4.5...4.9

Del.quantity cm<sup>3</sup>/ : 2.3...2.9

100 s: (2.0...3.2)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1060

travel mm : 8.10...8.30

2nd speed rpm : 275

travel mm : 1.10...1.50

3rd speed rpm : 500

travel mm : 3.60...4.20

4th speed rpm : 750

travel mm : 5.70...6.10

5th speed rpm : 1400

travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1065

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 246.0...248.0

1000 : (243.0...251.0)

Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 297...305

#### Testing:

1st rack travel in: 12.90  
Speed rpm : 1055...1065  
2nd rack travel in: 4.00  
Speed rpm : 1185...1215  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 242...250

#### Testing:

Speed rpm : 200  
Minimum rack travel: 5.90  
Speed rpm : 275  
Rack travel in mm : 4.60...4.80

#### CONSTANT REGULATION

Speed rpm : 310...430

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 13.90...14.00

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.90..10.30  
2nd pressure hPa : 600  
Rack travel in m: 13.10...13.20  
3rd pressure hPa : 200  
Rack travel in m: 10.70...11.10

#### START CUT-OUT

Speed 1/min : 225 (245)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 1000

Del.quantity cm3/ : 240.0...246.0  
1000 s: (237.0...249.0)

Speed rpm : 500

Aneroid pressure h: -

Speed rpm : 500

Del.quantity cm3/ : 138.0...140.0  
1000 s: (135.0...143.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 12.90  
Speed rpm : 1055...1065

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...165.0  
1000 s: (131.0...169.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.50...4.90  
Del.quantity cm3/ : 23.0...29.0  
1000 s: (20.0...32.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks:

:  
y y FEHLENDEN TEXT ÜBERSETZEN y y

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MAC 12,0 m  
 Edition : 13.05.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 402 746 911

Injection pump  
 Pump designation : PES6P120A720RS7239  
 EP type number : 0 412 726 850  
 Governor  
 Governor design. : RQV325...900PA944-13  
 K  
 Governor no. : 0 421 815 284

Customer-spec. information  
 Customer : MACK TRUCKS

Engine : E7-350 ITC

1st version kW : 261.0  
 Rated speed : 1800

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 011

Overflow  
 quantity min. 1/h: 160...170

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Phasing :  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 900

---

Rack travel in mm : 12.80...12.90

---

Del.quantity cm<sup>3</sup>/ : 23.1...23.3  
 100 s: (22.8...23.6)

---

Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 325.0  
 Rack travel in mm : 5.0...5.2  
 Del.quantity cm<sup>3</sup>/ : 4.6...5.2  
 100 s: (4.4...5.4)

Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 325  
 travel mm : 1.20...1.40

2nd speed rpm : 450  
 travel mm : 2.80...3.20

3rd speed rpm : 650  
 travel mm : 5.60...5.80

4th speed rpm : 900  
 travel mm : 8.30...8.50

5th speed rpm : 1100  
 travel mm : 10.30...10.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 900  
 Aneroid pressure h: 1200  
 Del.quantity : 231.5...233.5  
 1000 : (228.5...236.5)

Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

RATED SPEED

1st version  
Control lever  
position degrees: 58...66

Testing:  
1st rack travel in: 11.80  
Speed rpm : 940...990  
2nd rack travel in: 4.00  
Speed rpm : 1090...1100  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 8...16

Testing:  
Speed rpm : 275  
Minimum rack travel: 6.20  
Speed rpm : 325  
Rack travel in mm : 5.00...5.20

CONSTANT REGULATION  
Speed rpm : 325...520

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 900  
Rack travel in m: 12.80...12.90  
2nd speed rpm : 625  
Rack travel in m: 12.70...12.90  
3rd speed rpm : 500  
Rack travel in m: 10.70...11.10

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 900  
Pressure hPa : 1200  
Rack travel mm : 12.80...12.90

Measurement  
Speed 1/min : 900

1st pressure hPa : -  
Rack travel in m: 7.40...7.80  
2nd pressure hPa : 365  
Rack travel in m: 8.90...9.00  
3rd pressure hPa : 665  
Rack travel in m: 11.30...11.70

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 625  
Del.quantity cm3/ : 266.5...272.5  
1000 s: (263.5...275.5)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Speed rpm : 875  
Del.quantity cm3/ : 199.0...201.0 \*  
1000 s: (180.5...207.0)  
Aneroid pressure h: -  
Speed rpm : 400  
Del.quantity cm3/ : 147.5...151.5  
1000 s: (145.5...153.5)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.80  
Speed rpm : 940...990

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 220.0...250.0  
1000 s: (215.0...255.0)  
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325  
Rack travel in mm : 5.00...5.20  
Del.quantity cm3/ : 46.5...52.5  
1000 s: (44.5...54.5)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks: : MACK # 313GC5203-P8

y y FEHLENDEN TEXT ÜBERSETZEN y y

Bow dimension:  
Sliding-sleeve position = 37.0 mm  
\* This test specification applies only to the engine/nozzle-and-holder assemblies on an injection-pump test bench: setting for test equipment, check value for engine equipment.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MAC 12,0 m1  
 Edition : 13.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 746 912  
 Injection pump  
 Pump designation : PES6P120A720RS7239  
 EP type number : 0 412 726 850  
 Governor  
 Governor design. : RQV325...875PA944-14  
 K  
 Governor no. : 0 421 815 285

Customer-spec. information  
 Customer : MACK TRUCKS

Engine : EM7-300 ITC

1st version kW : 224.0  
 Rated speed : 1750

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 2 417 413 011

Overflow  
 quantity min. 1/h: 160...170

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

G27

Test pressure, bar: 22...24

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 11.00...13.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Phasing :  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 875  
 Rack travel in mm : 11.70...11.80  
 Del. quantity cm<sup>3</sup>/ : 22.4...22.6  
 100 s: (22.1...22.9)  
 Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 325.0  
 Rack travel in mm : 4.4...4.6  
 Del. quantity cm<sup>3</sup>/ : 4.6...5.2  
 100 s: (4.4...5.4)  
 Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 325  
 travel mm : 1.70...1.90  
 2nd speed rpm : 450  
 travel mm : 4.20...4.60  
 3rd speed rpm : 650  
 travel mm : 8.00...8.40  
 4th speed rpm : 900  
 travel mm : 10.00...10.20  
 5th speed rpm : 1000  
 travel mm : 10.80...11.20

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 875  
 Aneroid pressure h: 1200  
 Del. quantity : 224.5...226.5  
 1000 : (221.5...229.5)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

RATED SPEED

1st version  
Control lever  
position degrees: 63...71

Testing:  
1st rack travel in: 10.70  
Speed rpm : 915...965  
2nd rack travel in: 4.00  
Speed rpm : 1025...1035  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 9...17

Testing:  
Speed rpm : 275  
Minimum rack trave: 6.00  
Speed rpm : 325  
Rack travel in mm : 4.40...4.60

CONSTANT REGULATION  
Speed rpm : 325...520

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 875  
Rack travel in m: 11.70...11.80  
2nd speed rpm : 510  
Rack travel in m: 13.40...13.60  
3rd speed rpm : 450  
Rack travel in m: 12.30...12.70

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 510  
Pressure hPa : 1200  
Rack travel mm : 13.40...13.60

Measurement  
Speed 1/min : 510

1st pressure hPa : -  
Rack travel in m: 7.10...7.50  
2nd pressure hPa : 370  
Rack travel in m: 8.70...8.80  
3rd pressure hPa : 730  
Rack travel in m: 11.50...11.90

START CUT-OUT

Speed 1/min : 250 (255)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 510  
Del.quantity cm3/ : 331.5...337.5  
1000 s: (328.5...340.5)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Speed rpm : 875  
Del.quantity cm3/ : 199.0...201.0 \*  
1000 s: (159.5...183.0)  
Aneroid pressure h: -  
Speed rpm : 400  
Del.quantity cm3/ : 160.0...164.0  
1000 s: (158.0...166.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.70  
Speed rpm : 915...965

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 205.0...245.0  
1000 s: (200.0...250.0)  
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 325  
Rack travel in mm : 4.40...4.60  
Del.quantity cm3/ : 46.0...52.0  
1000 s: (44.0...54.0)  
Spread cm3 : 8.00  
1000 s: (12.00)

Remarks: : MACK # 313GC5203-P6

y y FEHLENDEN TEXT ÜBERSETZEN y y

Bow dimension:  
Sliding-sleeve position = 37.0 mm  
\* This test specification applies only  
to the engine/nozzle-and-holder  
assemblies on an injection-pump test  
bench: setting for test equipment,  
check value for engine equipment.



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 11,8 t  
 Edition : 26.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 402 746 914

Injection pump  
 Pump designation : PES6P120A720LS7238  
 EP type number : 0 412 726 852  
 Governor  
 Governor design. : RQ300/1100PA1008  
 Governor no. : 0 421 801 591

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 hLA

1st version kW : 220.0  
 Rated speed : 2200

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600  
 Rack travel in mm : 14.00...14.20  
 Del. quantity cm<sup>3</sup>/ : 21.3...21.5  
 100 s: (21.0...21.8)  
 Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 300.0  
 Rack travel in mm : 6.5...7.1  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -2  
 Speed rpm : 600  
 Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 600  
 Aneroid pressure h: 600  
 Del. quantity : 213.0...215.0  
 1000 : (210.0...218.0)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

**RATED SPEED**

1st version  
 Setting point:  
 Speed rpm : 600  
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.60  
Speed rpm : 1145...1160  
2nd rack travel in: 4.00  
Speed rpm : 1220...1250  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.8

Testing:

Speed rpm : 200  
Minimum rack trave: 8.70  
Speed rpm : 300  
Rack travel in mm : 6.50...7.10  
Rack travel in mm : 2.00  
Speed rpm : 370...410

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 600  
Rack travel mm : 14.00...14.20

Measurement

Speed 1/min : 600

1st pressure hPa : 150  
Rack travel in m: 12.20...12.40  
2nd pressure hPa : 400  
Rack travel in m: 13.60...13.80  
3rd pressure hPa : 800  
Rack travel in m: 14.20...14.40  
4th pressure hPa : 1100  
Rack travel in m: 15.10...15.30  
5th pressure hPa : -  
Rack travel in m: 11.70...12.00

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 1100  
Del.quantity cm3/ : 229.0...232.0  
1000 s: (226.0...235.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 700  
Del.quantity cm3/ : 238.0...242.0  
1000 s: (235.0...245.0)

Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 13.60  
Speed rpm : 1145...1160

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 f  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 846 050  
 Injection pump  
 Pump designation : PE6P110A32ORS8009  
 EP type number : 0 412 816 010  
 Governor  
 Governor design. : RQV250...1200PA953K  
 Governor no. : 0 421 815 996

Customer-spec. information  
 Customer : VOLVO-TRUCK

Engine : TD73EB

1st version kW : 184.0  
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 064

Inlet press., bar : 2.50

Overflow  
 quantity min. 1/h: 100...110

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90  
 : (3.75...3.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 12.30...12.40

Del. quantity cm<sup>3</sup>/ : 16.4...16.6

100 s: (16.2...16.8)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...5.1

Del. quantity cm<sup>3</sup>/ : 2.1...2.5

100 s: (1.8...2.8)

Spread cm<sup>3</sup> : 0.7

100 s: (1.1)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250

travel mm : 1.10...1.50

2nd speed rpm : 400

travel mm : 3.00...3.60

3rd speed rpm : 850

travel mm : 6.70...7.30

4th speed rpm : 1250

travel mm : 10.30...10.50

5th speed rpm : 1350

travel mm : 11.40...11.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1240

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1200  
Aneroid pressure h: 1200  
Del. quantity : 164.0...166.0  
1000 : (162.0...168.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 11.30  
Speed rpm : 1260...1270  
2nd rack travel in: 4.00  
Speed rpm : 1350...1380  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 69...77

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.40  
Speed rpm : 300  
Rack travel in mm : 4.70...4.90

#### CONSTANT REGULATION

Speed rpm : 300...450

#### TORQUE CONTROL

Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 12.30...12.40  
2nd speed rpm : 700  
Rack travel in m: 12.00...12.20  
3rd speed rpm : 850  
Rack travel in m: 12.20...12.40  
4th speed rpm : 350  
Rack travel in m: 10.80...11.10

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1000  
Pressure hPa : 1200  
Rack travel mm : 12.30...12.40

Measurement  
Speed 1/min : 1000

1st pressure hPa : -  
Rack travel in m: 7.30...7.50  
2nd pressure hPa : 90  
Rack travel in m: 7.50...7.60  
3rd pressure hPa : 830  
Rack travel in m: 11.90...12.10

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 700  
Del. quantity cm3/ : 195.0...199.0  
1000 s: (192.0...202.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 700  
Del. quantity cm3/ : 99.0...101.0  
1000 s: (96.0...104.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.30  
Speed rpm : 1260...1270

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.70...4.90

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VOL 7,1 f 1  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 402 846 051

Injection pump  
 Pump designation : PE6P110A32ORS8009  
 EP type number : 0 412 816 010  
 Governor  
 Governor design. : RQV250...1200PA953-1  
 K  
 Governor no. : 0 421 815 995

Customer spec. information  
 Customer : VOLVO-TRUCK

Engine : TD73EA

1st version kW : 158.0  
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 064

Inlet press., bar : 2.50

Overflow  
 quantity min. 1/h: 100...110

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90  
 : (3.75...3.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.30 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 11.70...11.80

Del. quantity cm<sup>3</sup>/ : 15.2...15.4

100 s: (15.0...15.6)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 4.7...5.1

Del. quantity cm<sup>3</sup>/ : 2.1...2.5

100 s: (1.8...2.8)

Spread cm<sup>3</sup> : 0.7

100 s: (1.1)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
 travel mm : 1.10...1.50

2nd speed rpm : 400  
 travel mm : 3.00...3.60

3rd speed rpm : 850  
 travel mm : 6.70...7.30

4th speed rpm : 1250  
 travel mm : 10.30...10.50

5th speed rpm : 1350  
 travel mm : 11.40...11.80

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1240

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1200  
Aneroid pressure h: 1200  
Del.quantity : 152.0...154.0  
1000 : (150.0...156.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 10.70  
Speed rpm : 1260...1270  
2nd rack travel in: 4.00  
Speed rpm : 1330...1360  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control Lever  
position degrees: 69...77

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.40  
Speed rpm : 300  
Rack travel in mm : 4.70...4.90

CONSTANT REGULATION  
Speed rpm : 300...450

TORQUE CONTROL  
Dimension a mm : ?  
Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 11.70...11.80  
2nd speed rpm : 700  
Rack travel in m: 10.40...10.60  
3rd speed rpm : 1000  
Rack travel in m: 11.70...11.90  
4th speed rpm : 350  
Rack travel in m: 9.70...9.90

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1000  
Pressure hPa : 1200  
Rack travel mm : 11.70...11.80

Measurement  
Speed 1/min : 1000

H07

1st pressure hPa : -  
Rack travel in m: 7.30...7.50  
2nd pressure hPa : 90  
Rack travel in m: 0.20...0.30  
3rd pressure hPa : 740  
Rack travel in m: 3.90...4.10

#### START CUT-OUT

Speed 1/min : 170 (190)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 158.0...162.0  
1000 s: (155.0...165.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 99.0...101.0  
1000 s: (96.0...104.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.70  
Speed rpm : 1260...1270

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 4.70...4.90

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 4,0 H 1  
Edition : 24.04.91  
Replaces : 18.02.91  
Test oil : ISO-4113

Combination no. : 0 403 444 120

Injection pump  
Pump designation : PES4MW100/72ORS1151  
EP type number : 0 413 404 104  
Governor  
Governor design. : RQ300/1300MW105-2  
Governor no. : 0 420 082 051

Customer-spec. information  
Customer : MB-NFZ

Engine : OM364A

1st version kW : 87.0  
Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
                  : (3.65...3.85)

Rack travel in mm : 9.00...12.00

H08

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.30...12.40

Del.quantity cm<sup>3</sup>/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.3...6.5

Del.quantity cm<sup>3</sup>/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1400

travel mm : 7.30...7.70

2nd speed rpm : 1300

travel mm : 6.10...6.30

3rd speed rpm : 550

travel mm : 5.70...6.30

4th speed rpm : 300

travel mm : 2.10...2.50

GUIDE SLEEVE POSITION

Control-lever position

Degree: 107

Speed rpm : 800

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

RATED SPEED

1st version  
Control lever  
position degrees: 89...97

Setting point:  
Speed rpm : 800  
Rack travel in mm : 20.0

Testing:  
1st rack travel in: 11.30  
Speed rpm : 1345...1360  
2nd rack travel in: 4.00  
Speed rpm : 1440...1470  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 69...77  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.4

Testing:  
Speed rpm : 200  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.30...6.50

TORQUE CONTROL  
Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1300  
Rack travel in m: 12.30...12.40  
2nd speed rpm : 600  
Rack travel in m: 12.80...12.90  
3rd speed rpm : 1100  
Rack travel in m: 12.40...12.70

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 11.00...11.10

Measurement  
Speed 1/min : 500

1st pressure hPa : 200  
Rack travel in m: 11.70...11.80  
2nd pressure hPa : 300  
Rack travel in m: 12.30...12.60  
3rd pressure hPa : 700  
Rack travel in m: 12.80...12.90

START CUT-OUT

H09

Speed 1/min : 200 (230)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 600  
Del.quantity cm3/ : 87.0...90.0  
1000 s: (84.5...92.5)  
Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 59.0...61.0  
1000 s: (57.0...63.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.30  
Speed rpm : 1345...1360

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 90.0...100.0  
1000 s: (87.0...103.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.30...6.50  
Del.quantity cm3/ : 10.0...14.0  
1000 s: (7.5...16.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 4,0 H 5  
 Edition : 26.04.91  
 Replaces : 18.02.91  
 Test oil : ISO-4113  
 Combination no. : 0 403 444 125  
 Injection pump  
 Pump designation : PES4MW100/72ORS1151  
 EP type number : 0 413 404 104  
 Governor  
 Governor design. : RQV300...1300MW67-3  
 Governor no. : 0 420 083 242

Customer-spec. information  
 Customer : MB-NFZ

Engine : OM 364 LA

1st version kW : 102.0  
 Rated speed : 2600

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test Lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)

Rack travel in mm : 9.00...12.00

Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 1300

Rack travel in mm : 12.70...12.80

Del.quantity cm<sup>3</sup>/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.8...7.0

Del.quantity cm<sup>3</sup>/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1350

travel mm : 8.40...8.80

2nd speed rpm : 880

travel mm : 4.90...5.10

3rd speed rpm : 500

travel mm : 2.70...3.30

4th speed rpm : 300

travel mm : 1.20...1.60

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 1300

Aneroid pressure h: 700

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

**RATED SPEED**

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 11.70  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1445...1475  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 83...91  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.9

Testing:  
Speed rpm : 200  
Minimum rack travel: 8.50  
Speed rpm : 300  
Rack travel in mm : 6.80...7.00

CONSTANT REGULATION  
Speed rpm : 320...550

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 200  
Rack travel mm : 11.30...11.40

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.60...10.70  
2nd pressure hPa : 335  
Rack travel in m: 12.10...12.40  
3rd pressure hPa : 700  
Rack travel in m: 12.70...12.80

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 82.5...85.5  
1000 s: (80.0...88.0)

Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Speed rpm : 1300  
Del.quantity cm<sup>3</sup>/ : 66.0...68.0  
1000 s: (64.0...70.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 49.0...51.0  
1000 s: (47.0...53.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.70  
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 85.0...95.0  
1000 s: (82.0...98.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.80...7.00  
Del.quantity cm<sup>3</sup>/ : 10.0...14.0  
1000 s: (7.5...16.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : AIF 5,9 A  
 Edition : 24.04.91  
 Replaces : 12.04.90  
 Test oil : ISO-4113

Combination no. : 0 403 446 238

Injection pump  
 Pump designation : PES6MW100/720RS1188  
 EP type number : 0 413 406 175  
 Governor  
 Governor design. : RQV300...1350MW106  
 Governor no. : 0 420 083 200

Customer-spec. information  
 Customer : AIFO

Engine : 8061.25.051

1st version kW : 210.0  
 Rated speed : 2700

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 30...32

Prestroke mm : 3.00...3.10  
 : (2.95...3.15)  
 Rack travel in mm : 11.50...14.50

H12

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 1350

Rack travel in mm : 10.50...10.60

Del.quantity cm<sup>3</sup>/ : 12.4...12.6

100 s: (12.2...12.8)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 5.9...6.1  
 Del.quantity cm<sup>3</sup>/ : 1.1...1.5  
 100 s: (0.8...1.7)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1530  
 travel mm : 9.00...9.20  
 2nd speed rpm : 1400  
 travel mm : 7.80...8.20  
 3rd speed rpm : 600  
 travel mm : 2.90...3.50  
 4th speed rpm : 300  
 travel mm : 1.00...1.40

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1450  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1350  
 Del.quantity : 124.0...126.0  
 1000 : (122.0...128.0)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version

Control lever  
position degrees: 118...126

Remarks:

Testing:

1st rack travel in: 9.50  
Speed rpm : 1380...1390  
2nd rack travel in: 4.00  
Speed rpm : 1485...1515  
4th rack travel in: 1575  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 84...92  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.0

Testing:

Speed rpm : 200  
Minimum rack trave: 7.50  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 117.5...120.5  
1000 s: (115.0...123.0)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50  
Speed rpm : 1380...1390

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 80.0...90.0  
1000 s: (77.0...93.0)  
Rack travel in mm : 10.50...10.60

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Del.quantity cm<sup>3</sup>/ : 11.0...15.0  
1000 s: (8.5...17.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : IHC 7,6 X  
 Edition : 24.04.91  
 Replaces : 28.09.90  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 239  
 Injection pump  
 Pump designation : PES6MM100/32DRS1189  
 EP type number : 0 413 406 177  
 Governor  
 Governor design. : RQV350...1200M46-21  
 Governor no. : 0 420 083 201

Customer-spec. information  
 Customer : NAVISTAR

Engine : DTA-466

1st version kw : 186.0  
 Rated speed : 2400

**TEST BENCH REQUIREMENTS**

Test oil inlet temp. °C : 38...42  
 Overflow valve : 2 417 413 038  
 Inlet press., bar : 2.80  
 Test nozzle holder assembly : 1 688 901 101  
 Opening pressure, bar : 207...210  
 Orifice plate diameter mm : 0,6  
 Test lines : 1 680 750 008  
 Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 800  
 Rack travel in mm : 14.00...14.10  
 Del.quantity cm<sup>3</sup>/ : 15.2...15.4  
 100 s: (15.0...15.6)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.6)  
 2nd speed rpm : 350.0  
 Rack travel in mm : 5.3...5.5  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
 100 s: (1.3...2.2)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

(B) Setting of injection pump with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1450  
 travel mm : 9.80...10.20  
 2nd speed rpm : 1250  
 travel mm : 7.90...8.10  
 3rd speed rpm : 550  
 travel mm : 3.10...3.70  
 4th speed rpm : 350  
 travel mm : 1.30...1.70

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 800  
 Aneroid pressure h: 900  
 Del.quantity : 152.0...154.0  
 1000 : (150.0...156.0)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version

Control lever  
position degrees: 104...112

Testing:

1st rack travel in: 13.00  
Speed rpm : 1280...1300  
2nd rack travel in: 4.00  
Speed rpm : 1435...1445  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.4

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version

Setting

Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.20...9.30

Measurement

Speed 1/min : 500

1st pressure hPa : 250  
Rack travel in m: 10.20...10.30  
2nd pressure hPa : 550  
Rack travel in m: 12.50...12.90  
3rd pressure hPa : 900  
Rack travel in m: 14.00...14.10

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 140.0...144.0  
1000 s: (138.0...146.0)

Spread cm<sup>3</sup> : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 59.0...61.0  
1000 s: (57.0...63.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.00  
Speed rpm : 1280...1300

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.30...5.50  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1815503C91  
In unlatched condition, do not  
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before  
shutoff.

Only perform pump setting with original  
overflow valve without IH hose and  
restrictor 1.2 mm diameter.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 W 6
Edition : 24.04.91
Replaces : 19.10.90
Test oil : ISO-4113
Combination no. : 0 403 446 240
Injection pump
Pump designation : PES6MM100/320RS1198
EP type number : 0 413 406 188
Governor
Governor design. : RQV350...1200MM46-22
Governor no. : 0 420 083 202

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 164.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values \_\_\_\_\_

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
: (3.20...3.40)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.90...12.00

Del.quantity cm3/ : 12.6...12.8

100 s: (12.3...13.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.2...5.4

Del.quantity cm3/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.80...10.20

2nd speed rpm : 1250

travel mm : 7.90...8.10

3rd speed rpm : 550

travel mm : 3.10...3.70

4th speed rpm : 350

travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 900

Del.quantity : 126.5...128.5

1000 : (123.5...131.5)

Spread cm3 : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 104...112

Testing:

1st rack travel in: 11.00  
Speed rpm : 1285...1305  
2nd rack travel in: 4.00  
Speed rpm : 1405...1415  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.3

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.10...9.20

Measurement

Speed 1/min : 500

1st pressure hPa : 275  
Rack travel in m: 9.90...10.00  
2nd pressure hPa : 550  
Rack travel in m: 11.40...11.80  
3rd pressure hPa : 900  
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 124.0...128.0  
1000 s: (122.0...130.0)  
Spread cm<sup>3</sup> : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -

H17

Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 72.5...74.5  
1000 s: (70.5...76.5)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.00  
Speed rpm : 1285...1305

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.20...5.40  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1815521C91

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 W 1  
 Edition : 24.04.91  
 Replaces : 28.09.90  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 241  
 Injection pump  
 Pump designation : PES6MW100/32ORS1198  
 EP type number : 0 413 406 188  
 Governor  
 Governor design. : RQV350...1200MW46-23  
 Governor no. : 0 420 083 203

Customer spec. information  
 Customer : NAVISTAR

Engine : DT -466

1st version kW : 157.0  
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42  
 Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder assembly : 1 688 901 101

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 11.90...12.00

Del.quantity cm<sup>3</sup>/ : 13.0...13.2

100 s: (12.8...13.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0  
 Rack travel in mm : 5.3...5.5  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
 100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450  
 travel mm : 9.80...10.20

2nd speed rpm : 1250  
 travel mm : 7.90...8.10

3rd speed rpm : 550  
 travel mm : 3.10...3.70

4th speed rpm : 350  
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 800  
 Aneroid pressure h: 900  
 Del.quantity : 130.0...132.0  
 1000 : (128.0...134.0)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

RATED SPEED

1st version

Control lever  
position degrees: 102...110

Testing:

1st rack travel in: 10.90  
Speed rpm : 1270...1290  
2nd rack travel in: 4.00  
Speed rpm : 1405...1415  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.4

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 8.80...8.90

Measurement

Speed 1/min : 500  
1st pressure hPa : 220  
Rack travel in m: 9.50...9.60  
2nd pressure hPa : 500  
Rack travel in m: 11.20...11.60  
3rd pressure hPa : 900  
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 1200  
Del.quantity cm3/ : 125.0...129.0  
1000 s: (123.0...131.0)

Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 70.0...72.0  
1000 s: (68.0...74.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.90  
Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...170.0  
1000 s: (125.0...175.0)  
Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.30...5.50  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1815518C91  
Only perform pump setting with original  
overflow valve without IH hose and  
restrictor 1.2 mm diameter.

Set shutoff stop 1.5...2.0 mm before  
shutoff.

In unlatched condition, do not  
operate greater than n = 500 1/min

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : IHC 7,6 W 4  
 Edition : 24.04.91  
 Replaces : 28.09.90  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 242  
 Injection pump  
 Pump designation : PES6MW100/320RS1198  
 EP type number : 0 413 406 188  
 Governor  
 Governor design. : RGV350...1200MW46-24  
 Governor no. : 0 420 083 204

Customer-spec. information  
 Customer : NAVISTAR

Engine : DT -466

1st version kW : 157.0  
 Rated speed : 2400

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 2 417 413 038  
 Inlet press., bar : 2.80  
 Test nozzle holder  
 assembly : 1 688 901 101  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,6  
 Test lines : 1 680 750 008  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 800  
 Rack travel in mm : 11.90...12.00  
 Del. quantity cm<sup>3</sup>/ : 13.0...13.2  
 100 s: (12.8...13.5)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.6)

2nd speed rpm : 350.0  
 Rack travel in mm : 5.3...5.5  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.0  
 100 s: (1.3...2.2)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1450  
 travel mm : 9.80...10.20  
 2nd speed rpm : 1250  
 travel mm : 7.90...8.10  
 3rd speed rpm : 550  
 travel mm : 3.10...3.70  
 4th speed rpm : 350  
 travel mm : 1.30...1.70

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 800  
 Aneroid pressure n : 900  
 Del. quantity : 130.0...132.0  
 1000 : (128.0...135.0)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version

Control lever  
position degrees: 102...110

Testing:

1st rack travel in: 10.90  
Speed rpm : 1270...1290  
2nd rack travel in: 4.00  
Speed rpm : 1405...1415  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.4

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.50...9.60

Measurement

Speed 1/min : 500

1st pressure hPa : 215  
Rack travel in m: 10.00...10.10  
2nd pressure hPa : 425  
Rack travel in m: 11.20...11.60  
3rd pressure hPa : 900  
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 125.0...129.0  
1000 s: (123.0...131.0)

Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 83.0...85.0  
1000 s: (81.0...87.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.90  
Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 130.0...170.0  
1000 s: (125.0...175.0)  
Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.30...5.50  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1815515C91  
Only perform pump setting with original  
overflow valve without IH hose and  
restrictor 1.2 mm diameter.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before  
shutoff.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : IHC 7,6 W  
 Edition : 24.04.91  
 Replaces : 16.08.90  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 243  
 Injection pump  
 Pump designation : PES6MW100/320RS1198  
 EP type number : 0 413 406 188  
 Governor  
 Governor design. : RQV350...1200MW46-25  
 Governor no. : 0 420 083 205

Customer-spec. information  
 Customer : NAVISTAR

Engine : DTA-466

1st version kw : 145.0  
 Rated speed : 2400

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 800  
 Rack travel in mm : 11.40...11.50  
 Del.quantity cm<sup>3</sup>/ : 12.0...12.2  
 100 s: (11.8...12.4)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.6)

2nd speed rpm : 350.0  
 Rack travel in mm : 5.3...5.5  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
 100 s: (1.3...2.2)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1450  
 travel mm : 9.80...10.20  
 2nd speed rpm : 1250  
 travel mm : 7.90...8.10  
 3rd speed rpm : 550  
 travel mm : 3.10...3.70  
 4th speed rpm : 350  
 travel mm : 1.30...1.70

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 800  
 Aneroid pressure h: 900  
 Del.quantity : 120.0...122.0  
 1000 : (118.0...124.0)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: 98...106

Testing:

1st rack travel in: 10.50  
Speed rpm : 1265...1285  
2nd rack travel in: 4.00  
Speed rpm : 1385...1395  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.4

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.30...5.50

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 800  
Pressure hPa : 210  
Rack travel mm : 9.40...9.50

Measurement

Speed 1/min : 800

1st pressure hPa : -  
Rack travel in m: 8.50...8.60  
2nd pressure hPa : 460  
Rack travel in m: 10.70...11.00  
3rd pressure hPa : 900  
Rack travel in m: 11.40...11.50

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 1200  
Del.quantity cm3/ : 115.0...119.0  
1000 s: (113.0...121.0)  
Spread cm3 : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -

Speed rpm : 800  
Del.quantity cm3/ : 71.5...73.5  
1000 s: (69.5...75.5)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.50  
Speed rpm : 1265...1285

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...170.0  
1000 s: (127.0...173.0)  
Rack travel in mm : 12.50...13.50

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.30...5.50  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1815519C91

Set shutoff stop 1.5...2.0 mm before shutoff.

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : IHC 7,6 X 2  
 Edition : 24.04.91  
 Replaces : 28.09.90  
 Test oil : ISO-4113

Combination no. : 0 403 446 244

Injection pump  
 Pump designation : PES6MM100/32ORS1189  
 EP type number : 0 413 406 177  
 Governor  
 Governor design. : RQV350...1200MM46-26  
 Governor no. : 0 420 083 206

Customer-spec. information  
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 201.0  
 Rated speed : 2400

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 800

Rack travel in mm : 14.70...14.80

Del.quantity cm<sup>3</sup>/ : 16.5...16.7

100 s: (16.3...16.9)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0  
 Rack travel in mm : 5.2...5.4  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
 100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1450  
 travel mm : 9.80...10.20

2nd speed rpm : 1250  
 travel mm : 7.90...8.10

3rd speed rpm : 550  
 travel mm : 3.10...3.70

4th speed rpm : 350  
 travel mm : 1.30...1.70

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 800  
 Aneroid pressure h: 1200  
 Del.quantity : 165.0...167.0  
 1000 : (163.0...169.0)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version

Control Lever  
position degrees: 102...110

Testing:  
1st rack travel in: 13.10  
Speed rpm : 1270...1290  
2nd rack travel in: 4.00  
Speed rpm : 1430...1440  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control Lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.3

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION  
Speed rpm : 300...450

TORQUE CONTROL  
Dimension a mm : 0.70  
Torque control curve - 1st version  
1st speed rpm : 800  
Rack travel in m: 14.70...14.80  
2nd speed rpm : 1200  
Rack travel in m: 14.00...14.10  
3rd speed rpm : 1050  
Rack travel in m: 14.30...14.50

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.20...9.30

Measurement  
Speed 1/min : 500

1st pressure hPa : 275  
Rack travel in m: 10.60...10.70  
2nd pressure hPa : 585  
Rack travel in m: 13.00...13.40  
3rd pressure hPa : 1200  
Rack travel in m: 14.70...14.80

START CUT-OUT

Speed 1/min : 280 (290)

H25

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 144.5...148.5  
1000 s: (142.5...150.5)  
Spread cm<sup>3</sup> : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 65.0...67.0  
1000 s: (63.0...69.0)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.10  
Speed rpm : 1270...1290

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 150.0...190.0  
1000 s: (147.0...193.0)  
Rack travel in mm : 19.00...21.00

## LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.20...5.40  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:  
: IHC #1815520C91

In unlatched condition, do not  
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before  
shutoff.

Only perform pump setting with original  
overflow valve without IH hose and  
restrictor 1.2 mm diameter.



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : IHC 7,7 A  
 Edition : 24.04.91  
 Replaces : 17.10.90  
 Test oil : ISO-4113

Combination no. : 0 403 446 245

Injection pump  
 Pump designation : PES6MM100/32ORS1204  
 EP type number : 0 413 406 192  
 Governor  
 Governor design. : RQV350...1350MM46-27  
 Governor no. : 0 420 083 207

Customer-spec. information  
 Customer : NAVISTAR

Engine : DTA-360

1st version kW : 138.0  
 Rated speed : 2700

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 850

Rack travel in mm : 10.60...10.70

Del.quantity cm<sup>3</sup>/ : 10.9...11.1

100 s: (10.7...11.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.2...5.4

Del.quantity cm<sup>3</sup>/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1450  
 travel mm : 8.20...8.60

2nd speed rpm : 1350  
 travel mm : 7.40...7.60

3rd speed rpm : 500  
 travel mm : 2.50...3.10

4th speed rpm : 350  
 travel mm : 1.30...1.70

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 850  
 Aneroid pressure h: 900  
 Del.quantity : 109.5...111.5  
 1000 : (107.5...113.5)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version

Control lever  
position degrees: 104...112

Testing:  
1st rack travel in: 9.60  
Speed rpm : 1415...1435  
2nd rack travel in: 4.00  
Speed rpm : 1510...1520  
4th rack travel in: 1600  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 72...80  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.3

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 8.40...8.50

Measurement  
Speed 1/min : 500

1st pressure hPa : 210  
Rack travel in m: 8.90...9.00  
2nd pressure hPa : 410  
Rack travel in m: 10.00...10.40  
3rd pressure hPa : 900  
Rack travel in m: 10.60...10.70

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 1350  
Del.quantity cm<sup>3</sup>/ : 105.0...109.0  
1000 s: (103.0...111.0)

Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 64.0...66.0  
1000 s: (62.0...68.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.60  
Speed rpm : 1415...1435

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 130.0...170.0  
1000 s: (127.0...173.0)  
Rack travel in mm : 13.00...14.00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.20...5.40  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1815516C91  
Only perform pump setting with original  
overflow valve without IH hose and  
restrictor 1.2 mm diameter.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before  
shutoff.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : PER 10,0 S  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 250  
 Injection pump  
 Pump designation : PES6MW100/32ORS1194  
 EP type number : 0 413 406 186  
 Governor  
 Governor design. : RQV300...1300MW108K  
 Govenner no. : 0 420 083 998

Customer-spec. information  
 Customer : PERKINS

Engine : 180 TI

1st version kW : 134.0  
 Rated speed : 2600

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.30...3.40  
 : (3.25...3.45)  
 Rack travel in mm : 12.00...14.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 1300

Rack travel in mm : 14.30...14.40

Del.quantity cm<sup>3</sup>/ : 13.4...13.6  
 100 s : (13.2...13.8)

Spread cm<sup>3</sup> : 0.3  
 100 s : (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 6.1...6.3  
 Del.quantity cm<sup>3</sup>/ : 1.4...1.8  
 100 s : (1.1...2.0)  
 Spread cm<sup>3</sup> : 0.3  
 100 s : (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1350  
 travel mm : 10.00...10.40  
 2nd speed rpm : 900  
 travel mm : 6.40...6.60  
 3rd speed rpm : 480  
 travel mm : 3.10...3.70  
 4th speed rpm : 300  
 travel mm : 1.40...1.80

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1380  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1300  
 Aneroid pressure h: 900  
 Del.quantity : 134.0...136.0  
 1000 : (132.0...138.0)

Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 13.30  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1480...1510  
4th rack travel in: 1600  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.2

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.50  
Speed rpm : 300  
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION  
Speed rpm : 330...500

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1300  
Rack travel in m: 14.30...14.40  
2nd speed rpm : 800  
Rack travel in m: 13.10...13.30  
3rd speed rpm : 500  
Rack travel in m: 11.70...11.90  
4th speed rpm : 1000  
Rack travel in m: 13.60...13.90  
5th speed rpm : 700  
Rack travel in m: 12.60...12.90

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.90...10.00

Measurement  
Speed 1/min : 500

1st pressure hPa : 180

J01

Rack travel in m: 10.40...10.50  
2nd pressure hPa : 220  
Rack travel in m: 10.90...11.20  
3rd pressure hPa : 900  
Rack travel in m: 11.70...11.90

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 126.0...129.0  
1000 s: (123.5...131.5)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Aneroid pressure h: 900  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 107.5...110.5  
1000 s: (105.0...113.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 77.0...79.0  
1000 s: (75.0...81.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.30  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 90.0...100.0  
1000 s: (87.0...103.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.10...6.30  
Del.quantity cm<sup>3</sup>/ : 14.0...18.0  
1000 s: (11.5...20.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

Start-of-delivery blocking 46.5°  
before start of delivery of cylinder 1

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : IHC 7,6 X 1  
 Edition : 24.04.91  
 Replaces : 28.09.90  
 Test oil : ISO-4113

Combination no. : 0 403 446 255

Injection pump  
 Pump designation : PES6MW100/320RS1189  
 EP type number : 0 413 406 177  
 Governor  
 Governor design. : RQV350...1200MW46-30  
 Governor no. : 0 420 083 218

Customer-spec. information  
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 201.0  
 Rated speed : 2400

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 800

Rack travel in mm : 14.50...14.60

Del.quantity cm<sup>3</sup>/ : 16.1...16.3

100 s: (15.9...16.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.2...5.4

Del.quantity cm<sup>3</sup>/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1450  
 travel mm : 9.80...10.20

2nd speed rpm : 1250  
 travel mm : 7.90...8.10

3rd speed rpm : 550  
 travel mm : 3.10...3.70

4th speed rpm : 350  
 travel mm : 1.30...1.70

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 800  
 Aneroid pressure h: 1200  
 Del.quantity : 161.0...163.0  
 1000 : (159.0...165.0)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version

Control lever  
position degrees: 102...110

Testing:  
1st rack travel in: 13.10  
Speed rpm : 1270...1290  
2nd rack travel in: 4.00  
Speed rpm : 1430...1440  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.3

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION  
Speed rpm : 300...450

TORQUE CONTROL  
Dimension a mm : 0.40  
Torque control curve - 1st version  
1st speed rpm : 800  
Rack travel in m: 14.50...14.60  
2nd speed rpm : 1200  
Rack travel in m: 14.10...14.20  
3rd speed rpm : 1050  
Rack travel in m: 14.30...14.50

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 10.20...10.30

Measurement  
Speed 1/min : 500

1st pressure hPa : 260  
Rack travel in m: 11.00...11.10  
2nd pressure hPa : 650  
Rack travel in m: 13.20...13.50  
3rd pressure hPa : 1200  
Rack travel in m: 14.50...14.60

START CUT-OUT

Speed 1/min : 280 (290)

J04

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 1200  
Del.quantity cm<sup>3</sup>/ : 146.0...150.0  
1000 s: (144.0...152.0)  
Spread cm<sup>3</sup> : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 82.0...84.0  
1000 s: (80.0...86.0)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.10  
Speed rpm : 1270...1290

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 150.0...190.0  
1000 s: (147.0...193.0)  
Rack travel in mm : 19.00...21.00

## LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.20...5.40  
Del.quantity cm<sup>3</sup>/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks: : IHC #1816731C91

In unlatched condition, do not  
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before  
shutoff.

Only perform pump setting with original  
overflow valve without IH hose and  
restrictor 1.2 mm diameter.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : IHC 7,6 W 7  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 256  
 Injection pump  
 Pump designation : PES6MW100/32ORS1198  
 EP type number : 0 413 406 188  
 Governor  
 Governor design. : RQV350...1200MW46-38  
 Governor no. : 0 420 083 219

Customer-spec. information  
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 164.0  
 Rated speed : 2400

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 800  
 Rack travel in mm : 11.90...12.00  
 Del.quantity cm<sup>3</sup>/ : 12.7...12.9  
 100 s: (12.5...13.1)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.6)

2nd speed rpm : 350.0  
 Rack travel in mm : 5.2...5.4  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
 100 s: (1.3...2.2)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1450  
 travel mm : 9.80...10.20  
 2nd speed rpm : 1250  
 travel mm : 7.90...8.10  
 3rd speed rpm : 550  
 travel mm : 3.10...3.70  
 4th speed rpm : 350  
 travel mm : 1.30...1.70

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 800  
 Aneroid pressure h: 900  
 Del.quantity : 127.5...129.5  
 1000 : (125.5...131.5)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: 104...112

Testing:

1st rack travel in: 11.00  
Speed rpm : 1285...1305  
2nd rack travel in: 4.00  
Speed rpm : 1405...1415  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.3

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.60...9.70

Measurement

Speed 1/min : 500

1st pressure hPa : 235  
Rack travel in m: 10.10...10.20  
2nd pressure hPa : 485  
Rack travel in m: 11.10...11.50  
3rd pressure hPa : 900  
Rack travel in m: 11.90...12.00

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 1200  
Del. quantity cm<sup>3</sup>/ : 125.0...129.0  
1000 s: (123.0...131.0)  
Spread cm<sup>3</sup> : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -

Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 81.5...83.5  
1000 s: (79.5...83.5)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.00  
Speed rpm : 1285...1305

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 140.0...180.0  
1000 s: (137.0...183.0)  
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.20...5.40  
Del. quantity cm<sup>3</sup>/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1816729C91

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 W 2  
 Edition : 24.04.91  
 Replaces : 17.09.90  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 262  
 Injection pump  
 Pump designation : PES6MW100/32ORS1198  
 EP type number : 0 413 406 188  
 Governor  
 Governor design. : RQV350...1200MW46-33  
 Governor no. : 0 420 083 226

Customer-spec. information  
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 172.0  
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.10...12.20

Del. quantity cm<sup>3</sup>/ : 13.1...13.3

100 s: (12.9...13.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.2...5.4

Del. quantity cm<sup>3</sup>/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450  
 travel mm : 9.80...10.20

2nd speed rpm : 1250  
 travel mm : 7.80...8.10

3rd speed rpm : 550  
 travel mm : 3.10...3.70

4th speed rpm : 350  
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 900

Del. quantity : 131.0...133.0

1000 : (129.0...135.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 98...106

Testing:

1st rack travel in: 11.10  
Speed rpm : 1270...1290  
2nd rack travel in: 4.00  
Speed rpm : 1405...1415  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.3

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.10...9.20

Measurement

Speed 1/min : 500

1st pressure hPa : 200  
Rack travel in m: 9.70...9.80  
2nd pressure hPa : 575  
Rack travel in m: 11.40...11.80  
3rd pressure hPa : 900  
Rack travel in m: 12.10...12.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 1200  
Del.quantity cm3/ : 128.5...132.5  
1000 s: (126.5...134.5)  
Spread cm3 : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -

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Speed rpm : 500  
Del.quantity cm3/ : 72.0...74.0  
1000 s: (70.0...76.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.10  
Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...170.0  
1000 s: (127.0...173.0)  
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.20...5.40  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1817194C91

Only perform pump setting with original  
overflow valve without IH hose and  
restrictor 1.2 mm diameter.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before  
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 W 3
Edition : 24.04.91
Replaces : 17.09.90
Test oil : ISO-4113
Combination no. : 0 403 446 263
Injection pump
Pump designation : PES6MW100/32ORS1198
EP type number : 0 413 406 188
Governor
Governor design. : RQV350...1200MW46-34
Governor no. : 0 420 083 227

Customer-spec. information
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 172.0
Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder
assembly : 1 688 901 101

Opening
pressure, bar : 207...210

Orifice plate
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00X2.00X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY
Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35
: (3.20...3.40)
Rack travel in mm : 9.00...12.00
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800
Rack travel in mm : 12.10...12.20

Del.quantity cm3/ : 13.1...13.3
100 s: (12.9...13.5)

Spread cm3 : 0.3
100 s: (0.6)

2nd speed rpm : 350.0
Rack travel in mm : 5.2...5.4
Del.quantity cm3/ : 1.6...2.0
100 s: (1.3...2.2)
Spread cm3 : 0.3
100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450
travel mm : 9.80...10.20
2nd speed rpm : 1250
travel mm : 7.90...8.10
3rd speed rpm : 550
travel mm : 3.10...3.70
4th speed rpm : 350
travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 800
Aneroid pressure h: 900
Del.quantity : 131.0...133.0
1000 : (129.0...135.0)
Spread cm3 : 3.50
1000 : (6.00)

RATED SPEED

1st version
Control Lever
position degrees: 98...106

Testing:

1st rack travel in: 11.10  
Speed rpm : 1270...1290  
2nd rack travel in: 4.00  
Speed rpm : 1405...1415  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.3

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.10...9.20

Measurement

Speed 1/min : 500

1st pressure hPa : 250  
Rack travel in m: 10.00...10.10  
2nd pressure hPa : 575  
Rack travel in m: 11.20...11.60  
3rd pressure hPa : 900  
Rack travel in m: 12.10...12.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 900  
Speed rpm : 1200  
Del. quantity cm<sup>3</sup>/ : 128.5...132.5  
1000 s: (126.5...134.5)  
Spread cm<sup>3</sup> : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -

Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 74.5...76.5  
1000 s: (72.5...78.5)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.10  
Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 130.0...170.0  
1000 s: (127.0...173.0)  
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.20...5.40  
Del. quantity cm<sup>3</sup>/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1817193C91

Only perform pump setting with original overflow valve without IH hose and restrictor 1.2 mm diameter.

In unlatched condition, do not operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before shutoff.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : MB 6,1 E  
 Edition : 03.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 275  
 Injection pump  
 Pump designation : PES6MM100/72ORS1120  
 EP type number : 0 413 406 112  
 Governor  
 Governor design. : RGV300...1300MW50-12  
 Governor no. : 0 420 083 237

Customer-spec. information  
 Customer : MB-NFZ

Engine : OM366LA

1st version kW : 156.0  
 Rated speed : 2600

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 1300

Rack travel in mm : 13.90...14.00

Del.quantity cm<sup>3</sup>/ : 10.8...11.0

100 s: (10.6...11.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm<sup>3</sup>/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1450  
 travel mm : 9.40...10.00

2nd speed rpm : 1350  
 travel mm : 8.50...8.70

3rd speed rpm : 450  
 travel mm : 2.40...3.00

4th speed rpm : 300  
 travel mm : 1.20...1.60

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1340

Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 108.0...110.0

1000 : (106.0...112.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

**RATED SPEED**

1st version  
Control lever  
position degrees: 110...118

Testing:  
1st rack travel in: 12.90  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1460...1490  
4th rack travel in: 1530  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 74...82  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:  
Speed rpm : 100  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

CONSTANT REGULATION  
Speed rpm : 320...550

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 10.30...10.40

Measurement  
Speed 1/min : 500

1st pressure hPa : 450  
Rack travel in m: 11.10...11.30  
2nd pressure hPa : 600  
Rack travel in m: 12.50...12.70  
3rd pressure hPa : 1000  
Rack travel in m: 13.90...14.00

START CUT-OUT

Speed 1/min : 230 (250)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 98.0...102.0  
1000 s: (96.0...104.0)

Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 36.0...38.0  
1000 s: (34.0...40.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.90  
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 90.0...100.0  
1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm<sup>3</sup>/ : 9.0...13.0  
1000 s: (6.5...15.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 6,1 D 2  
 Edition : 26.04.91  
 Replaces : 18.02.91  
 Test oil : ISO-4113

Combination no. : 0 403 446 276

Injection pump  
 Pump designation : PES6M100/72ORS1131  
 EP type number : 0 413 406 123  
 Governor  
 Governor design. : RQV300...1200MW50-18  
 Governor no. : 0 420 083 243

Customer-spec. information  
 Customer : MB-NFZ

Engine : OM 366 A

1st version kW : 115.0  
 Rated speed : 2400

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test Lines : 1 680 715 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.75)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 1200

Rack travel in mm : 10.20...10.30

Del.quantity cm<sup>3</sup>/ : 8.4...8.6

100 s : (8.2...8.8)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...5.8

Del.quantity cm<sup>3</sup>/ : 1.0...1.4

100 s : (0.7...1.6)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1250

travel mm : 7.40...7.80

2nd speed rpm : 880

travel mm : 4.90...5.10

3rd speed rpm : 500

travel mm : 2.70...3.10

4th speed rpm : 300

travel mm : 1.20...1.60

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1250

Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 1200

Aneroid pressure h: 700

Del.quantity : 84.0...86.0

1000 : (82.0...88.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

**RATED SPEED**

1st version  
Control lever  
position degrees: 107...115

Testing:  
1st rack travel in: 9.20  
Speed rpm : 1240...1250  
2nd rack travel in: 4.00  
Speed rpm : 1335...1365  
4th rack travel in: 1450  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 73...81  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.7

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.50  
Speed rpm : 300  
Rack travel in mm : 5.60...5.80  
Rack travel in mm : 2.00  
Speed rpm : 410...470

TORQUE CONTROL  
Dimension a mm : 0.80  
Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 10.20...10.30  
2nd speed rpm : 600  
Rack travel in m: 10.90...11.00  
3rd speed rpm : 1100  
Rack travel in m: 10.30...10.60

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 200  
Rack travel mm : 8.90...9.00

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.60...8.70  
2nd pressure hPa : 350  
Rack travel in m: 10.20...10.50  
3rd pressure hPa : 700  
Rack travel in m: 10.90...11.00

START CUT-OUT

Speed 1/min : 200 (230)

## FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 78.0...81.0  
1000 s: (75.5...83.5)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 44.0...46.0  
1000 s: (42.0...48.0)

## BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9.20  
Speed rpm : 1240...1250

## STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 78.0...88.0  
1000 s: (75.0...91.0)

## LOW IDLE

Speed rpm : 300  
Rack travel in mm : 5.60...5.80  
Del.quantity cm<sup>3</sup>/ : 10.0...14.0  
1000 s: (7.5...16.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : MB 6,1 D 4  
 Edition : 26.04.91  
 Replaces : 19.03.91  
 Test oil : ISO-4113

Combination no. : 0 403 446 278

Injection pump  
 Pump designation : PES6MW100/72ORS1131  
 EP type number : 0 413 406 123  
 Governor  
 Governor design. : RQV300...1300MW50-17  
 Governor no. : 0 420 083 244

Customer spec. information  
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 150.0  
 Rated speed : 2600

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.70...3.80  
 : (3.65...3.85)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 1300

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Rack travel in mm : 12.20...12.30

---

Del. quantity cm<sup>3</sup>/ : 9.6...9.8

---

100 s: (9.4...10.0)

---

Spread cm<sup>3</sup> : 0.3

---

100 s: (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 6.1...6.3  
 Del. quantity cm<sup>3</sup>/ : 0.9...1.3  
 100 s: (0.7...1.5)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1500  
 travel mm : 9.80...10.20  
 2nd speed rpm : 1350  
 travel mm : 8.40...8.60  
 3rd speed rpm : 670  
 travel mm : 4.60...5.20  
 4th speed rpm : 300  
 travel mm : 1.10...1.50

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1370  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1300  
 Aneroid pressure h: 700  
 Del. quantity : 96.5...98.5  
 1000 : (94.5...100.5)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version  
Control lever  
position degrees: 107...115

Testing:  
1st rack travel in: 11.20  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1460...1490  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 55...63  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.2

Testing:  
Speed rpm : 100  
Minimum rack travel: 7.60  
Speed rpm : 300  
Rack travel in mm : 6.10...6.30

CONSTANT REGULATION  
Speed rpm : 350...550

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 10.20...10.30

Measurement  
Speed 1/min : 500

1st pressure hPa : 170  
Rack travel in m: 10.90...11.00  
2nd pressure hPa : 225  
Rack travel in m: 11.90...12.20  
3rd pressure hPa : 700  
Rack travel in m: 12.20...12.30

START CUT-OUT

Speed 1/min : 220 (250)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 700  
Speed rpm : 575  
Del.quantity cm3/ : 82.0...85.0  
1000 s: (79.5...87.5)

Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 50.5...52.5  
1000 s: (48.5...54.5)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.20  
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 90.0...100.0  
1000 s: (87.0...103.0)

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.10...6.30  
Del.quantity cm3/ : 9.0...13.0  
1000 s: (7.0...15.0)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,1 B 4  
 Edition : 24.04.91  
 Replaces : 22.03.91  
 Test oil : ISO-4113

Combination no. : 0 403 446 280

Injection pump  
 Pump designation : PES6MM100/72ORS1131-1  
 EP type number : 0 413 406 165  
 Governor  
 Governor design. : RQV300...1300MW50-19  
 Governor no. : 0 420 083 245

Customer-spec. information  
 Customer : MB-NFZ

Engine : OM366LA

1st version kw : 155.0  
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.60...3.70  
 : (3.55...3.75)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 13.10...13.20

Del.quantity cm<sup>3</sup>/ : 9.8...10.0

100 s: (9.6...10.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 6.4...6.6

Del.quantity cm<sup>3</sup>/ : 1.0...1.4

100 s: (0.7...1.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450

travel mm : 9.50...9.90

2nd speed rpm : 1350

travel mm : 8.40...8.60

3rd speed rpm : 600

travel mm : 3.90...4.50

4th speed rpm : 300

travel mm : 0.80...1.20

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1300

Aneroid pressure h: 1000

Del.quantity : 98.0...100.0

1000 : (96.0...102.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

RATED SPEED

1st version  
Control lever  
position degrees: 114...122

Testing:  
1st rack travel in: 12.10  
Speed rpm : 1345...1355  
2nd rack travel in: 4.00  
Speed rpm : 1460...1490  
4th rack travel in: 1600  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 76...84  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.5

Testing:  
Speed rpm : 200  
Minimum rack travel: 8.00  
Speed rpm : 300  
Rack travel in mm : 6.40...6.60

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 10.30...10.40

Measurement  
Speed 1/min : 500

1st pressure hPa : 200  
Rack travel in m: 11.20...11.30  
2nd pressure hPa : 350  
Rack travel in m: 12.40...12.70  
3rd pressure hPa : 1000  
Rack travel in m: 13.10...13.20

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 87.0...91.0  
1000 s: (85.0...93.0)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 36.0...38.0  
1000 s: (34.0...40.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.10  
Speed rpm : 1345...1355

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 100.0...110.0  
1000 s: (97.0...113.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.40...6.60  
Del.quantity cm<sup>3</sup>/ : 10.0...14.0  
1000 s: (7.5...16.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : IHC 7,6 W 8  
Edition : 26.04.91  
Replaces : -  
Test oil : ISO-4113  
  
Combination no. : 0 403 446 282  
  
Injection pump  
Pump designation : PES6MW100/32ORS1198  
EP type number : 0 413 406 188  
Governor  
Governor design. : RQV350...1200MW46-39  
Governor no. : 0 420 083 246

Customer-spec. information  
Customer : NAVISTAR

Engine : DTA-466

1st version kW : 186.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder  
assembly : 1 688 901 101

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
                  : (3.20...3.40)  
Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.10...12.20

Del. quantity cm<sup>3</sup>/ : 13.0...13.2

100 s: (12.8...13.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.2...5.4

Del. quantity cm<sup>3</sup>/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 1450  
travel mm : 9.80...10.20

2nd speed rpm : 1250  
travel mm : 7.90...8.10

3rd speed rpm : 550  
travel mm : 3.10...3.70

4th speed rpm : 350  
travel mm : 1.30...1.70

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1200

Del. quantity : 130.0...132.0

1000 : (128.0...134.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 11.50  
Speed rpm : 1270...1290  
2nd rack travel in: 4.00  
Speed rpm : 1400...1410  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.3

Testing:

Speed rpm : 100  
Minimum rack trave: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.10...9.20

Measurement

Speed 1/min : 500

1st pressure hPa : 225  
Rack travel in m: 9.80...9.90  
2nd pressure hPa : 490  
Rack travel in m: 11.20...11.60  
3rd pressure hPa : 1200  
Rack travel in m: 12.10...12.20

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200  
Speed rpm : 1200  
Del.quantity cm3/ : 128.5...132.5  
1000 s: (126.5...134.5)  
Spread cm3 : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -

J20

Speed rpm : 500  
Del.quantity cm3/ : 69.5...71.5  
1000 s: (67.5...73.5)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.50  
Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 150.0...190.0  
1000 s: (145.0...195.0)  
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.20...5.40  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1817695C91

Only perform pump setting with original  
overflow valve without IH hose and  
restrictor 1.2 mm diameter.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before  
shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : IHC 7,6 W 7  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 283  
 Injection pump  
 Pump designation : PES6MW100/32ORS1198  
 EP type number : 0 413 406 188  
 Governor  
 Governor design. : RQV350...1200MW46-40  
 Governor no. : 0 420 083 247

Customer-spec. information  
 Customer : NAVISTAR

Engine : DTA-466

1st version kW : 186.0  
 Rated speed : 2400

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 038

Inlet press., bar : 2.80

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 30...32

Prestroke mm : 3.25...3.35  
 : (3.20...3.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 800

Rack travel in mm : 12.50...12.60

Del.quantity cm<sup>3</sup>/ : 13.3...13.5

100 s : (13.1...13.7)

Spread cm<sup>3</sup> : 0.3

100 s : (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 5.2...5.4

Del.quantity cm<sup>3</sup>/ : 1.6...2.0

100 s : (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s : (0.5)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1450  
 travel mm : 9.80...10.20

2nd speed rpm : 1250  
 travel mm : 7.90...8.10

3rd speed rpm : 550  
 travel mm : 3.10...3.70

4th speed rpm : 350  
 travel mm : 1.30...1.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 800

Aneroid pressure h: 1200

Del.quantity : 133.5...135.5

1000 : (131.5...137.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 102...110

Testing:

1st rack travel in: 11.50  
Speed rpm : 1270...1290  
2nd rack travel in: 4.00  
Speed rpm : 1400...1410  
4th rack travel in: 1500  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 5.3

Testing:

Speed rpm : 100  
Minimum rack travel: 9.00  
Speed rpm : 350  
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION

Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 9.00...9.10

Measurement

Speed 1/min : 500

1st pressure hPa : 335  
Rack travel in m: 10.00...10.10  
2nd pressure hPa : 645  
Rack travel in m: 11.40...11.80  
3rd pressure hPa : 1200  
Rack travel in m: 12.50...12.60

START CUT-OUT

Speed 1/min : 280 (290)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1200  
Speed rpm : 1200  
Del. quantity cm3/ : 132.0...136.0  
1000 s: (130.0...138.0)  
Spread cm3 : 6.50  
1000 s: (7.0)  
Aneroid pressure h: -

Speed rpm : 500  
Del. quantity cm3/ : 68.0...70.0  
1000 s: (66.0...72.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.50  
Speed rpm : 1270...1290

STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 150.0...190.0  
1000 s: (145.0...195.0)  
Rack travel in mm : 19.00...21.00

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 5.20...5.40  
Del. quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

: IHC #1817695C91

Only perform pump setting with original  
overflow valve without IH hose and  
restrictor 1.2 mm diameter.

In unlatched condition, do not  
operate greater than n = 500 1/min

Set shutoff stop 1.5...2.0 mm before  
shutoff.



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : RVI 6,2 J  
 Edition : 26.04.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 403 446 285  
 Injection pump  
 Pump designation : PES6MW100/32ORS1214  
 EP type number : 0 413 406 204  
 Governor  
 Governor design. : RQV275...1250MW115K  
 Governor no. : 0 420 083 994

Customer-spec. information  
 Customer : RVI

Engine : MIDR 060226 W  
 1st version kW : 151.0  
 Rated speed : 2500

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 2 417 413 033  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 101  
 Opening  
 pressure, bar : 172...175  
 Orifice plate  
 diameter mm : 0,6  
 Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 30...32

Prestroke mm : 4.20...4.30  
 : (4.15...4.35)  
 Rack travel in mm : 16.50...19.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 1250  
 Rack travel in mm : 12.00...12.10  
 Del.quantity cm<sup>3</sup>/ : 11.4...11.6  
 100 s: (11.2...11.8)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.6)

2nd speed rpm : 275.0  
 Rack travel in mm : 4.50...4.70  
 Del.quantity cm<sup>3</sup>/ : 2.0...2.4  
 100 s: (1.7...2.6)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1360  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1250  
 Aneroid pressure h: 1000  
 Del.quantity : 114.0...116.0  
 1000 : (112.0...118.0)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: 114...122

Testing:  
 1st rack travel in: 11.00  
 Speed rpm : 1320...1340  
 2nd rack travel in: 4.00  
 Speed rpm : 1430...1470  
 4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 60...68  
Setting point w/out bumper spring  
Speed rpm : 275  
Rack travel in mm : 7.4

Testing:

Speed rpm : 200  
Minimum rack trave: 5.00  
Speed rpm : 275  
Rack travel in mm : 4.50...4.70

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250  
Rack travel in m: 12.00...12.10  
2nd speed rpm : 700  
Rack travel in m: 11.10...11.20  
3rd speed rpm : 1000  
Rack travel in m: 11.30...11.50  
4th speed rpm : 500  
Rack travel in m: 10.50...10.70

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.90...9.00  
2nd pressure hPa : 200  
Rack travel in m: 9.30...9.60  
3rd pressure hPa : 320  
Rack travel in m: 10.20...10.30

START CUT-OUT

Speed 1/min : 200 (220)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000  
Speed rpm : 700  
Del.quantity cm3/ : 107.5...110.5  
1000 s: (105.0...113.0)  
Spread cm3 : 5.00  
1000 s: (7.0)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 70.5...72.5  
1000 s: (68.5...74.5)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.00  
Speed rpm : 1320...1340

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 88.0...102.0  
1000 s: (85.0...105.0)  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.50...4.70  
Del.quantity cm3/ : 20.0...24.0  
1000 s: (17.5...26.5)  
Spread cm3 : 3.50  
1000 s: (5.00)

Remarks:

y y FEHLENDEN TEXT ÜBERSETZEN y y

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : RVI 6,2 K  
 Edition : 26.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 403 446 286

Injection pump  
 Pump designation : PES6MW100/32ORS1216  
 EP type number : 0 413 406 206  
 Governor  
 Governor design. : RQV350...1175MW113-2  
 Governor no. : 0 420 083 248

Customer-spec. information  
 Customer : RVI

Engine : MIDR 060226 X

1st version kW : 166.0  
 Rated speed : 2350

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 2 417 413 033

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 172...175

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 4.20...4.30  
 : (4.15...4.35)  
 Rack travel in mm : 11.50...14.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 1175

Del.quantity cm3/ : 11.7...11.9

100 s: (11.5...12.1)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 275.0

Rack travel in mm : 7.3...7.5

Del.quantity cm3/ : 2.0...2.4

100 s: (1.7...2.6)

Spread cm3 : 0.3

100 s: (0.5)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1360

Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 1175

Aneroid pressure h: 1000

Del.quantity : 117.0...119.0

1000 : (115.0...121.0)

Spread cm3 : 3.50

1000 : (6.00)

**RATED SPEED**

1st version

Control lever

position degrees: 114...122

**Testing:**

1st rack travel in: 11.00

Speed rpm : 1250...1260

2nd rack travel in: 4.00

Speed rpm : 1415...1455

4th rack travel in: 1600

Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 60...68  
Setting point w/out bumper spring  
Speed rpm : 275  
Rack travel in mm : 7.4

Testing:

Speed rpm : 200  
Minimum rack trave: 6.00  
Speed rpm : 275  
Rack travel in mm : 4.50...4.70

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 11.90...12.00

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 6.70...6.80  
2nd pressure hPa : 240  
Rack travel in m: 7.80...8.10  
3rd pressure hPa : 600  
Rack travel in m: 11.50...11.60

START CUT-OUT

Speed 1/min : 260 (280)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000  
Speed rpm : 700  
Del.quantity cm3/ : 124.0...127.0  
1000 s: (121.5...129.5)  
Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 60.0...62.0  
1000 s: (58.0...64.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 11.00  
Speed rpm : 1250...1260

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 88.0...102.0  
1000 s: (85.0...105.0)  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 275  
Rack travel in mm : 4.50...4.70  
Del.quantity cm3/ : 20.0...24.0  
1000 s: (17.5...26.5)  
Spread cm3 : 3.50  
1000 s: (5.00)

Remarks:

:  
y y FEHLENDEN TEXT ÜBERSETZEN y y

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MAN 7,2 V 1  
 Edition : 24.04.91  
 Replaces : 18.02.91  
 Test oil : ISO-4113  
 Combination no. : 0 403 456 114  
 Injection pump  
 Pump designation : PES6MM100/321RS1201  
 EP type number : 0 413 406 190  
 Governor  
 Governor design. : RQV250...1200MW83-2  
 Governor no. : 0 420 083 216

Customer-spec. information  
 Customer : MAN

Engine : D 0826 LF02

1st version kW : 169.0  
 Rated speed : 2400

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 1000

Rack travel in mm : 12.50...12.60

Del. quantity cm<sup>3</sup>/ : 13.7...13.9

100 s: (13.5...14.1)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 5.2...5.4

Del. quantity cm<sup>3</sup>/ : 1.6...2.0

100 s: (1.3...2.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 1250  
 travel mm : 10.50...10.60

2nd speed rpm : 810  
 travel mm : 5.90...6.10

3rd speed rpm : 500  
 travel mm : 3.70...4.30

4th speed rpm : 250  
 travel mm : 1.20...1.60

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1

Speed rpm : 1300

Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 1000

Aneroid pressure h: 1000

Del. quantity : 137.0...139.0

1000 : (135.0...141.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

RATED SPEED

1st version  
Control lever  
position degrees: 120...128

Testing:  
1st rack travel in: 11.50  
Speed rpm : 1245...1260  
2nd rack travel in: 4.00  
Speed rpm : 1320...1350  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 70...78  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 5.3

Testing:  
Speed rpm : 100  
Minimum rack trave: 7.00  
Speed rpm : 250  
Rack travel in mm : 5.20...5.40

CONSTANT REGULATION  
Speed rpm : 330...420

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 170  
Rack travel mm : 10.30...10.40

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.10...10.20  
2nd pressure hPa : 550  
Rack travel in m: 12.10...12.40  
3rd pressure hPa : 1000  
Rack travel in m: 12.50...12.60

START CUT-OUT

Speed 1/min : 170 (200)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 600

Del.quantity cm3/ : 135.0...138.0  
1000 s: (132.5...140.5)  
Spread cm3 : 5.00  
1000 s: (7.0)  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm3/ : 138.0...141.0  
1000 s: (135.5...143.5)  
Aneroid pressure h: 1000  
Speed rpm : 1200  
Del.quantity cm3/ : 136.0...139.0  
1000 s: (133.5...141.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 74.0...76.0  
1000 s: (72.0...78.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.50  
Speed rpm : 1245...1260

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...140.0  
1000 s: (127.0...143.0)

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 5.20...5.40  
Del.quantity cm3/ : 16.0...20.0  
1000 s: (13.5...22.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks: : MAN #3-7135

Start-of-delivery mark is at start of  
delivery of cylinder 1

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 Q  
 Edition : 26.04.91  
 Replaces : 29.06.90  
 Test oil : ISO-4113

Combination no. : 0 403 466 123

Injection pump  
 Pump designation : PES6M100/120RS1137-2

EP type number : 0 413 406 180  
 Governor  
 Governor design. : RSV500...1250M2A319-16  
 Governor no. : 0 420 085 130

Customer-spec. information  
 Customer : CUMMINS

Engine : 6 CTA-8.3 L

1st version kW : 171.0  
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 017

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter x Wall thickness x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

K01

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Phasing :  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1250

---

Rack travel in mm : 12.60...12.70

---

Del.quantity cm<sup>3</sup>/ : 13.1...13.3  
 100 s: (12.9...13.5)

---

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.6)

2nd speed rpm : 500.0  
 Rack travel in mm : 9.4...9.6  
 Del.quantity cm<sup>3</sup>/ : 5.1...5.5  
 100 s: (4.9...5.8)

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1250  
 Del.quantity : 131.0...133.0  
 1000 : (129.0...135.0)

Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

RATED SPEED

1st version  
 Control lever  
 position degrees: 41...49

Setting point:  
Speed rpm : 800  
Rack travel in mm : 0.6

Testing:  
1st rack travel in: 11.60  
Speed rpm : 1320...1330  
2nd rack travel in: 4.00  
Speed rpm : 1360...1370  
3rd rack travel in: 4.00  
Speed rpm : 1360...1390  
4th rack travel in: 1550  
Speed rpm : 0.30...1.70

LOW IDLE 1  
Control lever  
position degrees: 19...27  
Setting point w/out bumper spring  
Speed rpm : 500  
Rack travel in mm : 9.0

Testing:  
Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 500  
Rack travel in mm : 8.90...9.10  
Rack travel in mm : 2.00  
Speed rpm : 540...600

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 750  
Del. quantity cm<sup>3</sup>/ : 123.5...126.5  
1000 s: (121.0...129.0)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.60  
Speed rpm : 1320...1330

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 125.0...145.0  
1000 s: (122.0...148.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 500  
Rack travel in mm : 9.40...9.60

K02

Del. quantity cm<sup>3</sup>/ : 51.5...55.5  
1000 s: (49.0...58.0)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:  
: CUM #3918357

Start-of-delivery mark 11° cam angle  
after start of delivery cyl. 1



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 H 1  
 Edition : 24.04.91  
 Replaces : 30.03.90  
 Test oil : ISO-4113

Combination no. : 0 403 476 080

Injection pump  
 Pump designation : PES6MM100/720RS1191  
 EP type number : 0 413 406 179  
 Governor  
 Governor design. : RSV350...1300MWOA329  
 -6  
 Govenor no. : 0 420 085 136

Customer-spec. information  
 Customer : MB-NFZ

Engine : OM 366 LA

1st version kW : 170.0  
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 30...32

Prestroke mm : 3.50...3.60  
 : (3.45...3.65)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1280

Rack travel in mm : 14.00...14.10

Del.quantity cm<sup>3</sup>/ : 11.2...11.4

100 s: (11.0...11.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 350.0

Rack travel in mm : 6.0...6.2

Del.quantity cm<sup>3</sup>/ : 0.9...1.3

100 s: (0.6...1.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...1.00

Governor spring pre-tension

Click setting x : 5.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1280

Aneroid pressure h: 1000

Del.quantity : 112.0...114.0

1000 : (110.0...116.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 105...113

Setting point:

Speed rpm : 800

Rack travel in mm : 0.6

Testing:

1st rack travel in: 13.00  
Speed rpm : 1330...1340  
2nd rack travel in: 4.00  
Speed rpm : 1420...1450  
4th rack travel in: 1550  
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever  
position degrees: 75...83  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 6.1

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 350  
Rack travel in mm : 6.00...6.20

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 10.10...10.20

Measurement

Speed 1/min : 500

1st pressure hPa : 350  
Rack travel in m: 11.30...11.40  
2nd pressure hPa : 500  
Rack travel in m: 12.40...12.70  
3rd pressure hPa : 1000  
Rack travel in m: 14.00...14.10

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1000  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 101.0...104.0  
1000 s: (98.5...106.5)  
Spread cm<sup>3</sup> : 5.00  
1000 s: (7.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 35.0...37.0  
1000 s: (33.0...39.0)

BREAKAWAY

K04

1st version  
1mm rack travel less than

full load rack tr: 13.00  
Speed rpm : 1330...1340

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 100.0...110.0  
1000 s: (97.0...113.0)

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 6.00...6.20  
Del.quantity cm<sup>3</sup>/ : 9.0...13.0  
1000 s: (6.5...15.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.00)

Remarks:

:

Test hydr. locking device for starting  
with 500...1000 hPa air pressure.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 6,6 q
Edition : 08.05.91
Replaces : 16.1.91
Test oil : ISO-4113
Combination no. : 9 400 085 331
Injection pump
Pump designation : PES6A95D410RS2800
EP type number : 9 400 084 024
Governor
Governor design. : RGV375...1400AB1257L
Governor no. : 9 420 080 299

Customer-spec. information
Customer : FNH

Engine : 6.6 L - NA

1st version kW : 108.9
Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 457 413 010

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter
x Wall thickness
x Length mm : 6.00x2.00x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values \_\_\_\_\_

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 3.15...3.25
: (3.10...3.30)
Rack travel in mm : 9.00...12.00

K05

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00
& maximum rack tra: 21.00
Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.70...10.80

Del.quantity cm3/ : 7.8...8.0

100 s: (7.6...8.2)

Spread cm3 : 0.3

100 s: (0.6)

2nd speed rpm : 375.0

Rack travel in mm : 6.3...6.5

Del.quantity cm3/ : 0.4...1.0

100 s: (0.3...1.2)

Spread cm3 : 0.3

100 s: (0.5)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 1420

travel mm : 8.50...8.60

2nd speed rpm : 350

travel mm : 1.30...1.60

3rd speed rpm : 700

travel mm : 4.20...4.60

4th speed rpm : 1100

travel mm : 6.10...6.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1400

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1400

Del.quantity : 78.0...80.0  
1000 : (76.0...82.0)  
Spread cm<sup>3</sup> : 3.50  
1000 : (6.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 114...122

#### Testing:

1st rack travel in: 9.70  
Speed rpm : 1450...1460  
2nd rack travel in: 4.00  
Speed rpm : 1540...1570  
4th rack travel in: 1700  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 67...75

#### Testing:

Speed rpm : 100  
Minimum rack travel: 9.50  
Speed rpm : 375  
Rack travel in mm : 6.30...6.50

#### CONSTANT REGULATION

Speed rpm : 460...530

#### TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 10.70...10.80  
2nd speed rpm : 500  
Rack travel in m: 11.20...11.30  
3rd speed rpm : 900  
Rack travel in m: 11.20...11.30  
4th speed rpm : 1150  
Rack travel in m: 11.00...11.10

#### START CUT-OUT

Speed 1/min : 290 (310)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 63.0...66.0  
1000 s: (60.5...68.5)  
Speed rpm : 900  
Del.quantity cm<sup>3</sup>/ : 74.5...77.5  
1000 s: (72.0...80.0)  
Speed rpm : 1150

Del.quantity cm<sup>3</sup>/ : 76.0...79.0  
1000 s: (73.5...76.5)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.70  
Speed rpm : 1450...1460

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 115.0...129.0  
1000 s: (112.0...132.0)  
Rack travel in mm : 19.00...21.00

#### LOW IDLE

Speed rpm : 375  
Rack travel in mm : 6.30...6.50  
Del.quantity cm<sup>3</sup>/ : 4.5...10.5  
1000 s: (3.0...12.0)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

#### Remarks:

Set shutoff stop 1.5...2.0 mm before shutoff.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 i 3  
 Edition : 08.05.91  
 Replaces : 9.4.91  
 Test oil : ISO-4113  
 Combination no. : 9 400 087 429  
 Injection pump  
 Pump designation : PES6P120A72ORS3256-1  
 EP type number : 9 400 087 077  
 Governor  
 Governor design. : RQV300...1300PA963  
 Governor no. : 9 420 080 283

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 156.6  
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
 : (4.25...4.45)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 12.90...13.00

Del. quantity cm<sup>3</sup>/ : 15.7...15.9

100 s: (15.4...16.2)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...8.9

Del. quantity cm<sup>3</sup>/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.20...1.70

2nd speed rpm : 650  
 travel mm : 3.80...4.30

3rd speed rpm : 1060  
 travel mm : 5.60...6.10

4th speed rpm : 1358  
 travel mm : 8.20...8.70

5th speed rpm : 1461  
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1300  
Aneroid pressure h: 1000  
Del.quantity : 157.0...159.0  
1000 : (154.0...162.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 11.90  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1420...1450  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 86...94

Testing:  
Speed rpm : 200  
Minimum rack travel: 10.20  
Speed rpm : 300  
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 12.90...13.10

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.60...10.90  
2nd pressure hPa : 300  
Rack travel in m: 11.10...11.30  
3rd pressure hPa : 500  
Rack travel in m: 12.10...12.30

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

K08

1st version  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 142.0...146.0  
1000 s: (139.0...149.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 65.0...67.0  
1000 s: (62.0...70.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.90  
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 100.0...120.0  
1000 s: (96.0...124.0)

Remarks:  
:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 6,0 i 4  
 Edition : 08.05.91  
 Replaces : 9.4.91  
 Test oil : ISO-4113

Combination no. : 9 400 087 430

Injection pump  
 Pump designation : PES6P120A72ORS3256-1  
 EP type number : 9 400 087 077  
 Governor  
 Governor design. : RQV300...1300PA963-1  
 Governor no. : 9 420 080 284

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 171.5  
 Rated speed : 2600

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
 : (4.25...4.45)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 1300

Rack travel in mm : 13.90...14.00

Del. quantity cm<sup>3</sup>/ : 18.0...18.2  
 100 s: (17.7...18.5)

Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 300.0  
 Rack travel in mm : 8.6...8.9  
 Del. quantity cm<sup>3</sup>/ : 1.0...1.6  
 100 s: (0.7...1.9)

Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.20...1.70

2nd speed rpm : 650  
 travel mm : 3.80...4.30

3rd speed rpm : 1060  
 travel mm : 5.60...6.10

4th speed rpm : 1358  
 travel mm : 8.20...8.70

5th speed rpm : 1461  
 travel mm : 9.80...10.30

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1300  
Aneroid pressure h: 1000  
Del.quantity : 180.0...182.0  
1000 : (177.0...185.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 117...125

Testing:  
1st rack travel in: 12.90  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1445...1475  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 86...94

Testing:  
Speed rpm : 200  
Minimum rack travel: 10.20  
Speed rpm : 300  
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 13.90...14.10

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.60...10.90  
2nd pressure hPa : 300  
Rack travel in m: 11.10...11.30  
3rd pressure hPa : 700  
Rack travel in m: 13.00...13.20

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

K10

1st version  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 164.0...168.0  
1000 s: (161.0...171.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 65.0...67.0  
1000 s: (62.0...70.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.90  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 100.0...120.0  
1000 s: (96.0...124.0)

Remarks:

:



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 i 2  
 Edition : 08.05.91  
 Replaces : 9.4.91  
 Test oil : ISO-4113  
 Combination no. : 9 400 087 431  
 Injection pump  
 Pump designation : PES6P120A720RS3256  
 EP type number : 9 400 087 071  
 Governor  
 Governor design. : RQV300...1300PA963-2  
 Governor no. : 9 420 080 285

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 141.7  
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
 : (4.25...4.45)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.60...11.70

Del. quantity cm<sup>3</sup>/ : 13.4...13.6

100 s: (13.1...13.9)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...8.9

Del. quantity cm<sup>3</sup>/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.20...1.70

2nd speed rpm : 650  
 travel mm : 3.80...4.30

3rd speed rpm : 1060  
 travel mm : 5.60...6.10

4th speed rpm : 1358  
 travel mm : 8.20...8.70

5th speed rpm : 1461  
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1300  
Aneroid pressure h: 1000  
Del.quantity : 134.0...136.0  
1000 : (131.0...139.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

RATED SPEED

1st version  
Control lever  
position degrees: 115...123

Testing:  
1st rack travel in: 10.60  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1410...1440  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 86...94

Testing:  
Speed rpm : 200  
Minimum rack travel: 10.20  
Speed rpm : 300  
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 11.60...11.80

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.60...10.90  
2nd pressure hPa : 250  
Rack travel in m: 10.80...11.00  
3rd pressure hPa : 360  
Rack travel in m: 11.30...11.50

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

K12

1st version  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 114.0...118.0  
1000 s: (111.0...121.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 65.0...67.0  
1000 s: (62.0...70.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.60  
Speed rpm : 1340...1350

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 90.0...110.0  
1000 s: (86.0...114.0)

Remarks:

:

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 n 3  
 Edition : 08.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 400 087 441  
 Injection pump  
 Pump designation : PES6P110A72ORS3267  
 EP type number : 9 400 087 072  
 Governor  
 Governor design. : RSV650...1250P8A528-  
 1  
 Governor no. : 9 420 082 328

Customer-spec. information  
 Customer : FORD FNH

Engine : 7.8 L

1st version kW : 140.0  
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 9 401 087 403  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 017  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

K13

Prestroke mm : 4.25...4.35  
 : (4.20...4.30)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1200  
 Rack travel in mm : 13.20...13.30  
 Del. quantity cm<sup>3</sup>/ : 13.2...13.4  
 100 s: (13.0...13.6)  
 Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 650.0  
 Rack travel in mm : 5.9...6.1  
 Del. quantity cm<sup>3</sup>/ : 0.8...1.2  
 100 s: (0.5...1.5)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : 3.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1200  
 Del. quantity : 132.0...134.0  
 1000 : (130.0...136.0)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

RATED SPEED

1st version  
 Control lever  
 position degrees: 99...107

Testing:

1st rack travel in: 12.20  
Speed rpm : 1260...1270  
2nd rack travel in: 4.00  
Speed rpm : 1300...1320  
4th rack travel in: 1400  
Speed rpm : 0.30...1.70

Combine-harvester

LOW IDLE 1  
Control lever  
position degrees: 73...81  
Setting point w/out bumper spring  
Speed rpm : 650  
Rack travel in mm : 6.0

Testing:  
Speed rpm : 600  
Minimum rack trave: 10.00  
Speed rpm : 650  
Rack travel in mm : 5.40...5.60  
Rack travel in mm : 2.00  
Speed rpm : 685...745

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 800  
Del.quantity cm3/ : 110.0...114.0  
1000 s: (108.0...116.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.20  
Speed rpm : 1260...1270

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...155.0  
1000 s: (131.0...159.0)  
Rack travel in mm : 20.00...21.00

#### LOW IDLE

Speed rpm : 650  
Rack travel in mm : 5.90...6.10  
Del.quantity cm3/ : 8.0...12.0  
1000 s: (5.5...15.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

#### APPLICATION

K14

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : FOR 7,8 n 4  
 Edition : 08.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 400 087 442  
 Injection pump  
 Pump designation : PES6P110A72ORS3267  
 EP type number : 9 400 087 072  
 Governor  
 Governor design. : RSV650...1250P8A530-  
 4  
 Governor no. : 9 420 082 329

Customer-spec. information  
 Customer : FORD - FNH

Engine : 7.8 l  
 1st version kw : 165.0  
 Rated speed : 2500

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 9 401 087 403  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 017  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,6  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 4.25...4.35  
 : (4.20...4.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 1

**BEGINNING OF DELIVERY DIFFERENCE**

betw. rack trav. m: 9.00...12.00  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.00...3.00

**BASIC SETTING**

1st speed rpm : 1200  
 Rack travel in mm : 13.50...13.60  
 Del.quantity cm<sup>3</sup>/ : 13.7...13.9  
 100 s: (13.5...14.1)  
 Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 650.0  
 Rack travel in mm : 5.9...6.1  
 Del.quantity cm<sup>3</sup>/ : 1.1...1.5  
 100 s: (0.8...1.7)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : 3.25

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1200  
 Aneroid pressure h: 1000  
 Del.quantity : 137.0...139.0  
 1000 : (135.0...141.0)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

RATED SPEED

1st version  
Control Lever  
position degrees: 99...107

Testing:  
1st rack travel in: 12.50  
Speed rpm : 1260...1270  
2nd rack travel in: 4.00  
Speed rpm : 1300...1320  
4th rack travel in: 1400  
Speed rpm : 0.30...1.70

LOW IDLE 1  
Control Lever  
position degrees: 73...81  
Setting point w/out bumper spring  
Speed rpm : 650  
Rack travel in mm : 6.0

Testing:  
Speed rpm : 600  
Minimum rack trave: 10.00  
Speed rpm : 650  
Rack travel in mm : 5.40...5.60  
Rack travel in mm : 2.00  
Speed rpm : 685...745

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1200  
Pressure hPa : 1000  
Rack travel mm : 13.50...13.60

Measurement  
Speed 1/min : 1200

1st pressure hPa : -  
Rack travel in m: 9.90...10.00  
2nd pressure hPa : 600  
Rack travel in m: 12.50...12.60  
3rd pressure hPa : 400  
Rack travel in m: 10.50...10.70

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm3/ : 117.5...119.5  
1000 s: (115.5...121.5)  
Aneroid pressure h: -  
Speed rpm : 1200

Del.quantity cm3/ : 79.0...81.0  
1000 s: (77.0...83.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.50  
Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 135.0...155.0  
1000 s: (131.0...159.0)  
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650  
Rack travel in mm : 5.90...6.10  
Del.quantity cm3/ : 11.0...15.0  
1000 s: (8.5...17.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

APPLICATION

Combine-harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : FOR 7,8 n 5  
 Edition : 08.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 400 087 443  
 Injection pump  
 Pump designation : PES6P110A72ORS3267  
 EP type number : 9 400 087 072  
 Governor  
 Governor design. : RSV650...125DP8A530-  
 3  
 Governor no. : 9 420 082 330

Customer-spec. information  
 Customer : FORD -FNH

Engine : 7.8 l  
 1st version kW : 180.0  
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 9 401 087 403  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 017  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,6  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

K17

Prestroke mm : 4.25...4.35  
 : (4.20...4.40)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.00...3.00

BASIC SETTING

1st speed rpm : 1200  
 Rack travel in mm : 14.60...14.70  
 Del. quantity cm<sup>3</sup>/ : 15.5...15.7  
 100 s: (15.3...15.9)  
 Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)  
 2nd speed rpm : 650.0  
 Rack travel in mm : 5.9...6.1  
 Del. quantity cm<sup>3</sup>/ : 1.1...1.5  
 100 s: (0.8...1.7)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...1.00

Governor spring pre-tension  
 Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1200  
 Aneroid pressure h: 1000  
 Del. quantity : 155.0...157.0  
 1000 : (153.0...159.0)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

RATED SPEED

1st version  
Control lever  
position degrees: 98...106

Testing:  
1st rack travel in: 13.60  
Speed rpm : 1260...1270  
2nd rack travel in: 4.00  
Speed rpm : 1305...1325  
4th rack travel in: 1400  
Speed rpm : 0.30...1.70

LOW IDLE 1  
Control lever  
position degrees: 72...80  
Setting point w/out bumper spring  
Speed rpm : 650  
Rack travel in mm : 6.0

Testing:  
Speed rpm : 600  
Minimum rack travel: 10.00  
Speed rpm : 650  
Rack travel in mm : 5.40...5.60  
Rack travel in mm : 2.00  
Speed rpm : 685...745

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 1200  
Pressure hPa : 1000  
Rack travel mm : 14.60...14.70

Measurement  
Speed 1/min : 1200

1st pressure hPa : -  
Rack travel in m: 11.50...11.60  
2nd pressure hPa : 600  
Rack travel in m: 14.00...14.10  
3rd pressure hPa : 400  
Rack travel in m: 12.40...12.60

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 131.0...135.0  
1000 s: (129.0...137.0)  
Aneroid pressure h: -  
Speed rpm : 1200

Del.quantity cm<sup>3</sup>/ : 107.0...109.0  
1000 s: (105.0...111.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.60  
Speed rpm : 1260...1270

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 135.0...155.0  
1000 s: (131.0...159.0)  
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650  
Rack travel in mm : 5.90...6.10  
Del.quantity cm<sup>3</sup>/ : 11.0...15.0  
1000 s: (8.5...17.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

APPLICATION

Combine-harvester



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 i 5  
 Edition : 08.05.91  
 Replaces : 9.4.91  
 Test oil : ISO-4113

Combination no. : 9 400 087 450

Injection pump  
 Pump designation : PES6P120A72ORS3256  
 EP type number : 9 400 087 071  
 Governor  
 Governor design. : RQV300...1300PA978  
 Governor no. : 9 420 080 296

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 366 LA

1st version kW : 126.8  
 Rated speed : 2600

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.30...4.40  
 : (4.25...4.45)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1300

Rack travel in mm : 11.80...11.90

Del.quantity cm<sup>3</sup>/ : 13.8...14.0

100 s: (13.5...14.3)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...8.9

Del.quantity cm<sup>3</sup>/ : 1.0...1.6

100 s: (0.7...1.9)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.20...1.70

2nd speed rpm : 650  
 travel mm : 3.80...4.30

3rd speed rpm : 1060  
 travel mm : 5.60...6.10

4th speed rpm : 1358  
 travel mm : 8.20...8.70

5th speed rpm : 1461  
 travel mm : 9.80...10.30

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1350

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1300  
Aneroid pressure h: 1000  
Del.quantity : 138.0...140.0  
1000 : (135.0...143.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 114...122

Testing:  
1st rack travel in: 10.80  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1410...1440  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 86...94

Testing:  
Speed rpm : 200  
Minimum rack trave: 10.20  
Speed rpm : 300  
Rack travel in mm : 8.80...9.20

CONSTANT REGULATION  
Speed rpm : 300...450

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 11.80...12.00

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.40...10.70  
2nd pressure hPa : 250  
Rack travel in m: 10.60...10.80  
3rd pressure hPa : 360  
Rack travel in m: 11.10...11.30

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

K20

1st version  
Aneroid pressure h: 1000  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 118.0...122.0  
1000 s: (115.0...125.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 61.0...63.0  
1000 s: (58.0...66.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.80  
Speed rpm : 1340...1350

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 90.0...110.0  
1000 s: (86.0...114.0)

Remarks:  
:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : IHC 9,0 f 3  
 Edition : 14.05.91  
 Replaces : 14.10.87  
 Test oil : ISO-4113

Combination no. : 9 400 230 016

Injection pump  
 Pump designation : PES8A75D32ORS2463  
 Governor  
 Governor design. : RQV300...1500AB1059  
 DR

**Customer-spec. information**  
 Customer : IHC

Engine : DV 550 C

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : -

Inlet press., bar : 2.5

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 9 681 230 702

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Prestroke mm : 1.95...2.05 \*  
 : (1.90...2.10)  
 Rack travel in mm : 10.70  
 Prestroke mm : 3.95...4.05  
 : (3.90...4.10)\*\*  
 Rack travel in mm : 10.70  
 Firing order : 1-8-7-3-6-5-4-2

Phasing : 0-45-90-135-180-225-  
 270-315  
 Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 1500

---

Rack travel in mm : 10.65...10.75

---

Del.quantity cm<sup>3</sup>/ : 6.8...6.9

---

100 s : (-)

---

Spread cm<sup>3</sup> : 0.2

---

100 s : (-)

2nd speed rpm : 300  
 Rack travel in mm : 6.00  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.0 \*\*  
 100 s : (-)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1600  
 Rack travel in mm : 15.00...18.50

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1500  
 Del.quantity : 68.0...69.0  
 1000 : (64.5...70.5)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: 64...72

Testing:  
 1st rack travel in: 9.70  
 Speed rpm : 1600...1610  
 2nd rack travel in: 9...14  
 Speed rpm : 1700  
 3rd rack travel in: 3.00...9.50  
 Speed rpm : 1800  
 4th rack travel in: 2000  
 Speed rpm : 0.00...1.00

**LOW IDLE 1**

Control lever  
 position degrees: 6...14

Testing:  
 Speed rpm : 200

Minimum rack trave: 8.20  
Speed rpm : 300  
Rack travel in mm : 5.40...7.30  
Rack travel in mm : 3.05  
Speed rpm : 450  
Speed rpm : 600  
Maximum rack trave: 2.60  
Speed rpm : 870  
Rack travel in mm : ...0.1

#### START CUT-OUT

Speed 1/min : 150...230

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 300  
Del.quantity cm3/ : 1.0...15.0 \*  
1000 s: (0...16.0)  
Speed rpm : 300  
Del.quantity cm3/ : 36.0...46.0 \*\*  
1000 s: (-)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 9.70  
Speed rpm : 1600...1610

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 112.0...135.0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 17.0...21.0  
Del.quantity cm3/ : (-)

#### Remarks:

\* = cylinders 1,7,6 and 4

\*\* = cylinders 2,8,3 and 5

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DEE 7,6 j 5  
 Edition : 13.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 9 400 230 046  
 Injection pump  
 Pump designation : PES6A95D41ORS2561  
 EP type number : 9 410 230 006  
 Governor  
 Governor design. : RSV600...1100A2C2048  
 -1L  
 Governer no. : 9 420 234 157

Customer-spec. information  
 Customer : JOHN DEERE

Engine : 6466T

1st version kW : 110.0  
 Rated speed : 2200

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 413 385 007

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 27...29

Prestroke mm : 1.85...1.95  
 : (1.80...2.00)

Rack travel in mm : 10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 1100

Rack travel in mm : 9.90...10.00

Del.quantity cm<sup>3</sup>/ : 9.1...9.3

100 s: (8.9...9.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 600.0

Rack travel in mm : 5.0...5.2

Del.quantity cm<sup>3</sup>/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 1100

Del.quantity : 91.0...93.0

1000 : (89.0...95.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

**RATED SPEED**

1st version

Control lever

position degrees: 44...52

Testing:

1st rack travel in: 8.90

Speed rpm : 1145...1155

2nd rack travel in: 4.00

Speed rpm : 1195...1225  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 24...32  
Setting point w/out bumper spring  
Speed rpm : 600  
Rack travel in mm : 4.6

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 600  
Rack travel in mm : 5.00...5.20

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 9.90...10.00  
2nd speed rpm : 950  
Rack travel in m: 10.70...10.90

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 950  
Del.quantity cm<sup>3</sup>/ : 104.0...108.0  
1000 s: (101.5...110.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.90  
Speed rpm : 1145...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 155.0...175.0  
1000 s: (150.0...180.0)  
Rack travel in mm : 19.00...21.00

#### HIGH IDLE

##### 1st version

Speed rpm : 1200  
Rack travel in mm : 4.70...4.90

#### LOW IDLE

Speed rpm : 600  
Rack travel in mm : 5.00...5.20

Del.quantity cm<sup>3</sup>/ : 12.0...16.0  
1000 s: (9.5...18.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

#### Remarks:

: JOHN DEERE # RE28880  
Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

Start-of-delivery mark = 15.5° after  
start of delivery cyl. 1.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : DEE 7,6 j 4  
Edition : 13.05.91  
Replaces : 14.1.88  
Test oil : ISO-4113  
  
Combination no. : 9 400 230 047  
  
Injection pump  
Pump designation : PES6A95D410RS2561  
EP type number : 9 410 230 006  
Governor  
Governor design. : RSV600...1100A2C2049  
-1L  
Governor no. : 9 420 234 158

Customer-spec. information  
Customer : JOHN DEERE

Engine : 6466TH-02

1st version kW : 125.0  
Rated speed : 2200

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 413 385 007

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 008

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 27...29

Prestroke mm : 1.85...1.95  
: (1.80...2.00)

Rack travel in mm : 10.50  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTINGS

1st speed rpm : 1100

Rack travel in mm : 10.60...10.70

Del. quantity cm<sup>3</sup>/ : 10.7...10.9

100 s: (10.5...11.1)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 600.0

Rack travel in mm : 4.9...5.1

Del. quantity cm<sup>3</sup>/ : 1.2...1.6

100 s: (0.9...1.8)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : ?

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 107.0...109.0

1000 : (105.0...111.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version

Control lever

position degrees: 43...51

Testing:

1st rack travel in: 9.60

Speed rpm : 1145...1155

2nd rack travel in: 4.00

Speed rpm : 1200...1230  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever  
position degrees: 24...32  
Setting point w/out bumper spring  
Speed rpm : 600  
Rack travel in mm : 4.5

Testing:  
Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 600  
Rack travel in mm : 4.90...5.10

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 10.60...10.70  
2nd speed rpm : 950  
Rack travel in m: 11.50...11.70

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 950  
Del.quantity cm<sup>3</sup>/ : 120.0...124.0  
1000 s: (118.5...125.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9.60  
Speed rpm : 1145...1155

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 155.0...175.0  
1000 s: (150.0...180.0)  
Rack travel in mm : 19.00...21.00

#### HIGH IDLE

1st version  
Speed rpm : 1200  
Rack travel in mm : 4.70...4.90

#### LOW IDLE

Speed rpm : 600  
Rack travel in mm : 4.90...5.10

Del.quantity cm<sup>3</sup>/ : 12.0...16.0  
1000 s: (9.5...18.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:  
: JOHN DEERE # RE28881  
Adjustment without torque-control  
spring retainer with 1 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

Start-of-delivery mark = 15.5° after  
start of delivery cyl. 1.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : CUM 8,3 a62  
 Edition : 13.05.91  
 Replaces : 18.2.91  
 Test oil : ISO-4113

Combination no. : 9 400 230 111

Injection pump  
 Pump designation : PES6A100D320/3RS2691  
 -4  
 EP type number : 9 410 230 030  
 Governor  
 Governor design. : RSV450...1100AOC2190  
 -40R  
 Governor no. : 0 420 233 246

Customer-spec. information  
 Customer : C.D.C.

Engine : 6CT830

1st version kW : 134.2  
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 047

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

K27

Test pressure, bar: 27...29

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Phasing :  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1100

---

Rack travel in mm : 11.20...11.30

---

Del.quantity cm<sup>3</sup>/ : 10.3...10.5  
 100 s: (10.1...10.7)

---

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.6)

2nd speed rpm : 450.0  
 Rack travel in mm : 5.7...5.9  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.0  
 100 s: (1.4...2.2)

Spread cm<sup>3</sup> : 0.6  
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1100  
 Del.quantity : 103.5...105.5  
 1000 : (101.5...107.5)

Spread cm<sup>3</sup> : 4.00  
 1000 : (6.50)

RATED SPEED

1st version  
 Control lever  
 position degrees: 49...57

Testing:

1st rack travel in: 10.20  
Speed rpm : 1140...1150  
2nd rack travel in: 4.00  
Speed rpm : 1210...1240  
3rd rack travel in: 4.00  
Speed rpm : 1215...1245  
4th rack travel in: 1300  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 31...39  
Setting point w/out bumper spring  
Speed rpm : 450  
Rack travel in mm : 5.3

Testing:

Speed rpm : 100  
Minimum rack travel: 19.00  
Speed rpm : 450  
Rack travel in mm : 5.70...5.90

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 11.20...11.30  
2nd speed rpm : 750  
Rack travel in m: 12.00...12.20

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 750  
Del.quantity cm3/ : 111.5...115.5  
1000 s: (109.5...117.5)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.20  
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 138.0...158.0  
1000 s: (133.0...163.0)  
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 450  
Rack travel in mm : 5.70...5.90

Del.quantity cm3/ : 16.5...20.5  
1000 s: (14.5...22.5)  
Spread cm3 : 6.00  
1000 s: (8.00)

Remarks:

: C.D.C # 3915684  
Adjustment without torque-control  
spring retainer with 0,5 mm less  
control-rod travel. Increase in  
full-load delivery with torque-control  
spring retainer.

Start-of-delivery mark 11° cam angle  
after start of delivery cyl. 1

Adjust stop lever to 0.5...1.0 mm  
before stop.

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : KHD 15,8 c2  
 Edition : 03.06.91  
 Replaces : 9.1.89  
 Test oil : ISO-4113

Combination no. : 0 400 649 188

Injection pump  
 Pump designation : PE10A95D610/4LS2452  
 EP type number : 0 410 699 998  
 Governor  
 Governor design. : RQV300...1150AB988DL  
 Governor no. : 0 420 214 229

Customer-spec. information  
 Customer : KHD

Engine : F10L413F

1st version kW : 216.0  
 Rated speed : 2300

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)  
 Rack travel in mm : 9.00...12.00

L01

Firing order : 1- 10- 9- 4- 3- 6-  
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
 216-243-288-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 1150

---

Rack travel in mm : 10.00...10.10

---

Del. quantity cm<sup>3</sup>/ : 9.1...9.2  
 100 s: (8.9...9.4)

---

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 7.0...7.2  
 Del. quantity cm<sup>3</sup>/ : 1.7...2.3  
 100 s: (1.4...2.5)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1150  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1150  
 Del. quantity : 91.5...92.5  
 1000 : (89.5...94.5)  
 Spread cm<sup>3</sup> : 3.00  
 1000 : (6.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: 117...125

Testing:  
 1st rack travel in: 9.00  
 Speed rpm : 1190...1200  
 2nd rack travel in: 4.00  
 Speed rpm : 1235...1265  
 4th rack travel in: 1350  
 Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 80...88

Testing:

Speed rpm : 200  
Minimum rack trave: 9.00  
Speed rpm : 300  
Rack travel in mm : 5.90...6.10  
Speed rpm : 750  
Maximum rack trave: 1.00

CONSTANT REGULATION

Speed rpm : 320...390

TORQUE CONTROL

Dimension a mm : 0.50  
Torque control curve - 1st version  
1st speed rpm : 1150  
Rack travel in m: 10.00...10.10  
2nd speed rpm : 975  
Rack travel in m: 10.20...10.40  
3rd speed rpm : 700  
Rack travel in m: 10.50...10.60

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 700  
Del.quantity cm3/ : 90.0...93.0  
1000 s: (87.5...95.5)

RACK STOP ADJUSTMENT

Speed rpm : 600

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.00  
Speed rpm : 1190...1200

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 300

L02

Rack travel in mm : 7.00...7.20  
Del.quantity cm3/ : 17.0...23.0  
1000 s: (14.5...25.5)  
Spread cm3 : 3.50  
1000 s: (5.50)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : DAF 8,3 n 7  
 Edition : 27.05.91  
 Replaces : 21.5.90  
 Test oil : ISO-4113

Combination no. : 0 400 676 178

Injection pump  
 Pump designation : PE6A95D410RS2575  
 EP type number : 0 410 696 984  
 Governor  
 Governor design. : RSV250...750A7C2201L  
 Governor no. : 0 420 232 444

Customer-spec. information  
 Customer : DAF

Engine : DHTD 825

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BEGINNING OF DELIVERY DIFFERENCE**

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 3.00...4.00

**BASIC SETTING**

1st speed rpm : 700

---

Rack travel in mm : 13.20...13.30

---

Del.quantity cm<sup>3</sup>/ : 11.0...11.1  
 100 s: (10.8...11.3)

---

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.6)

---

2nd speed rpm : 250.0  
 Rack travel in mm : 6.0...6.2  
 Del.quantity cm<sup>3</sup>/ : 0.7...1.3  
 100 s: (0.5...1.4)

---

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 700  
 Del.quantity : 110.5...111.5  
 1000 : (108.5...113.5)

---

Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: 89...97

Testing:  
 1st rack travel in: 12.20  
 Speed rpm : 750...755  
 2nd rack travel in: 4.00  
 Speed rpm : 782...797

4th rack travel in: 950  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 65...73  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.1

Testing:

Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Rack travel in mm : 2.00  
Speed rpm : 265...325

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.20  
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Del.quantity cm<sup>3</sup>/ : 7.0...13.0  
1000 s: (5.5...14.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 8,3 n 8  
 Edition : 27.05.91  
 Replaces : 27.2.91  
 Test oil : ISO-4113  
 Combination no. : 0 400 676 192  
 Injection pump  
 Pump designation : PE6A95D410RS2575  
 EP type number : 0 410 696 984  
 Governor  
 Governor design. : RSV250...750A7C2201-  
 1L  
 Governor no. : 0 420 232 563

Customer-spec. information  
 Customer : DAF

Engine : DH 825

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 3.00...4.00

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.20...13.30

Del.quantity cm<sup>3</sup>/ : 11.0...11.1

100 s: (10.8...11.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 250.0

Rack travel in mm : 6.0...6.2

Del.quantity cm<sup>3</sup>/ : 0.7...1.3

100 s: (0.5...1.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 110.5...111.5

1000 : (108.5...113.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever

position degrees: 89...97

Testing:

1st rack travel in: 12.20

Speed rpm : 750...755

2nd rack travel in: 4.00

Speed rpm : 782...797  
4th rack travel in: 950  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control Lever  
position degrees: 65...73  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.1

Testing:

Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Rack travel in mm : 2.00  
Speed rpm : 265...325

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 12.20  
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19.50...21.00

LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Del. quantity cm<sup>3</sup>/ : 7.0...13.0  
1000 s: (5.5...14.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

APPLICATION

Generator



# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 6,0 j 1  
Edition : 27.05.91  
Replaces : 1.2.91  
Test oil : ISO-4113

Combination no. : 0 400 846 592

Injection pump  
Pump designation : PES6A95D410RS2797  
EP type number : 0 410 896 900  
Governor  
Governor design. : RQV300...1200AB1065-  
24L  
Governor no. : 0 420 212 228

Customer-spec. information  
Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 92.0  
Rated speed : 2400

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
x Wall thickness  
x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.20...3.30  
: (3.15...3.35)

Rack travel in mm : 9.00...12.00  
Firing order : 1-5-3-6-2-4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

## BASIC SETTING

1st speed rpm : 1200

Rack travel in mm : 9.90...10.00

Del. quantity cm<sup>3</sup>/ : 5.8...6.0

100 s: (5.6...6.2)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 300.0

Rack travel in mm : 8.6...9.0

Del. quantity cm<sup>3</sup>/ : 0.8...1.2

100 s: (0.5...1.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
travel mm : 0.80...1.30

2nd speed rpm : 500  
travel mm : 2.30...2.80

3rd speed rpm : 750  
travel mm : 4.10...4.30

4th speed rpm : 1500  
travel mm : 8.50...8.60

## GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1450

Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1200

Del. quantity : 58.5...60.5

1000 : (56.5...62.5)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

## RATED SPEED

1st version  
Control lever  
position degrees: 104...112

Testing:  
1st rack travel in: 8.90  
Speed rpm : 1240...1250  
2nd rack travel in: 4.00  
Speed rpm : 1360...1390  
4th rack travel in: 1550  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 73...81

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.60  
Speed rpm : 300  
Rack travel in mm : 8.60...9.00

CONSTANT REGULATION  
Speed rpm : 525...625

TORQUE CONTROL  
Dimension a mm : 0.80  
Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 9.90...10.00  
2nd speed rpm : 500  
Rack travel in m: 10.70...10.90  
4th speed rpm : 840  
Rack travel in m: 10.20...10.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 44.0...47.0  
1000 s: (41.5...49.5)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.90  
Speed rpm : 1240...1250

#### STARTING FUEL DELIVERY

Speed rpm : 100

L08

Del.quantity cm<sup>3</sup>/ : 78.0...88.0  
1000 s: (75.0...91.0)  
Rack travel in mm : 14.60...15.00

Remarks:

Set shutoff stop to contact at  
3.0...3.5 mm control-rod travel.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 k 1  
Edition : 03.06.91  
Replaces : 22.3.91  
Test oil : ISO-4113

Combination no. : 0 400 864 088

Injection pump  
Pump designation : PES4A85D410/3RS2799  
EP type number : 0 410 884 944  
Governor  
Governor design. : RSV325...1250A2C2253  
-2L  
Governor no. : 0 420 232 556

Customer-spec. information  
Customer : KHD

Engine : BF4L913

1st version kW : 78.0  
Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 0 681 343 009

Opening  
pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.45...2.55  
: (2.40...2.60)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 11.70...11.80

Del.quantity cm<sup>3</sup>/ : 8.4...8.5  
100 s: (8.2...8.7)

Spread cm<sup>3</sup> : 0.3  
100 s: (0.5)

2nd speed rpm : 325.0  
Rack travel in mm : 7.0...7.2  
Del.quantity cm<sup>3</sup>/ : 1.2...1.8  
100 s: (1.0...2.0)  
Spread cm<sup>3</sup> : 0.2  
100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 2.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 1250  
Aneroid pressure h: 1000  
Del.quantity : 84.0...85.0  
1000 : (82.0...87.0)  
Spread cm<sup>3</sup> : 3.00  
1000 : (5.00)

RATED SPEED

1st version  
Control lever  
position degrees: 89...97

Testing:  
1st rack travel in: 10.70  
Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1320...1350

4th rack travel in: 1480  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 58...66  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 6.0

Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 325  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 320...380

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 11.70...11.80  
2nd speed rpm : 500  
Rack travel in m: 12.10...12.20  
4th speed rpm : 960  
Rack travel in m: 11.80...12.00

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 12.10...12.20

Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 11.00...11.10  
2nd pressure hPa : 300  
Rack travel in m: 11.80...11.90  
3rd pressure hPa : 230  
Rack travel in m: 11.30...11.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 520  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 80.0...82.0  
1000 s: (77.5...84.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 58.0...60.0  
1000 s: (56.0...62.0)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.70  
Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 120.0...130.0  
1000 s: (117.0...133.0)

Remarks:

APPLICATION

Compressor

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 4,1 k 2  
 Edition : 27.05.91  
 Replaces : 24.4.91  
 Test oil : ISO-4113  
 Combination no. : 0 400 864 089  
 Injection pump  
 Pump designation : PES4A85D410/3RS2799  
 EP type number : 0 410 884 944  
 Governor  
 Governor design. : RSV325...1075A8C2253  
 -3L  
 Governor no. : 0 420 232 547

Customer-spec. information  
 Customer : KHD

Engine : BF4L913

1st version kW : 70.0  
 Rated speed : 2150

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 000  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 0 681 343 009  
 Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60  
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00  
 Firing order : 1-3-4-2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1075  
 Rack travel in mm : 11.90...12.00

Del.quantity cm<sup>3</sup>/ : 7.9...8.0  
 100 s: (7.7...8.2)

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

2nd speed rpm : 325.0  
 Rack travel in mm : 8.2...8.4  
 Del.quantity cm<sup>3</sup>/ : 1.2...1.8  
 100 s: (1.0...2.0)  
 Spread cm<sup>3</sup> : 0.2  
 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1075  
 Aneroid pressure h: 1000  
 Del.quantity : 79.5...80.5  
 1000 : (77.5...82.5)  
 Spread cm<sup>3</sup> : 3.00  
 1000 : (5.00)

RATED SPEED

1st version  
 Control lever  
 position degrees: 95...103

Testing:  
 1st rack travel in: 10.90  
 Speed rpm : 1115...1125  
 2nd rack travel in: 4.00  
 Speed rpm : 1150...1180

4th rack travel in: 1315  
Speed rpm : 0.30...1.70

#### LOW IDLE 1

Control lever  
position degrees: 64...72  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 8.3

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 325  
Rack travel in mm : 8.20...8.40  
Rack travel in mm : 2.00  
Speed rpm : 350...410

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1075  
Rack travel in m: 11.90...12.00  
2nd speed rpm : 500  
Rack travel in m: 12.40...12.50  
4th speed rpm : 860  
Rack travel in m: 12.20...12.40

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 1000  
Rack travel mm : 12.40...12.50

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
Rack travel in m: 11.40...11.50  
2nd pressure hPa : 330  
Rack travel in m: 12.00...12.10  
3rd pressure hPa : 250  
Rack travel in m: 11.70...11.90

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 79.5...81.5  
1000 s: (77.0...84.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 57.0...59.0  
1000 s: (55.0...61.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.90  
Speed rpm : 1115...1125

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 115.0...125.0  
1000 s: (112.0...128.0)  
Rack travel in mm : 18.00...18.40

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : MWM 4,1 b 6  
 Edition : 03.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 400 864 092  
 Injection pump  
 Pump designation : PES4A90D320/3RS2659  
 EP type number : 0 410 894 028  
 Governor  
 Governor design. : RSV325...1250A5C2182  
 -9R  
 Governor no. : 0 420 233 287

Customer-spec. information  
 Customer : MWM

Engine : TD226B-4

1st version kW : 87.0  
 Rated speed : 2500

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.95...3.05  
 : (2.90...3.10)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 3- 4- 2

Phasing : 0-90-180-270

Tolerance + - ° : 0.50 (0.75)

**BEGINNING OF DELIVERY DIFFERENCE**

betw. rack trav. m: 9.00...0.00  
 & maximum rack tra: 21.00  
 Difference ° CS : 3.50...4.50

**BASIC SETTING**

1st speed rpm : 1250  
 Rack travel in mm : 11.50...11.60  
 Del.quantity cm<sup>3</sup>/ : 9.1...9.2  
 100 s: (8.9...9.4)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

2nd speed rpm : 325.0  
 Rack travel in mm : 7.0...7.2  
 Del.quantity cm<sup>3</sup>/ : 0.8...1.4  
 100 s: (0.6...1.6)  
 Spread cm<sup>3</sup> : 0.2  
 100 s: (0.4)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.50

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1250  
 Aneroid pressure h: 700  
 Del.quantity : 91.5...92.5  
 1000 : (89.5...94.5)  
 Spread cm<sup>3</sup> : 3.00  
 1000 : (5.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: 103...111

Testing:  
 1st rack travel in: 10.50

Speed rpm : 1290...1300  
2nd rack travel in: 4.00  
Speed rpm : 1345...1375  
3rd rack travel in: 4.00  
Speed rpm : 1355...1385  
4th rack travel in: 1520  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 68...76  
Setting point w/out bumper spring  
Speed rpm : 325  
Rack travel in mm : 5.5

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 325  
Rack travel in mm : 5.90...6.10  
Rack travel in mm : 2.00  
Speed rpm : 445...505

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1250  
Rack travel in m: 11.50...11.60  
2nd speed rpm : 500  
Rack travel in m: 12.60...12.70  
3rd speed rpm : 920  
Rack travel in m: 11.90...12.10

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 12.60...12.70

#### Measurement

Speed 1/min : 500  
1st pressure hPa : -  
Rack travel in m: 10.40...10.50  
2nd pressure hPa : 185  
Rack travel in m: 11.60...11.70  
3rd pressure hPa : 90  
Rack travel in m: 11.00...11.20

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700  
Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 98.5...100.5  
1000 s: (96.0...103.0)

Aneroid pressure h: 185  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 79.0...81.0  
1000 s: (76.5...83.5)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 61.0...63.0  
1000 s: (59.0...65.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.50  
Speed rpm : 1290...1300

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 132.0...142.0  
1000 s: (129.0...145.0)  
Rack travel in mm : 19.50...21.00

Remarks:

:



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : KHD 6,1 w  
 Edition : 27.05.91  
 Replaces : 24.4.91  
 Test oil : ISO-4113

Combination no. : 0 400 866 169

Injection pump  
 Pump designation : PES6A85D410/3RS2611  
 EP type number : 0 410 886 902  
 Governor  
 Governor design. : RSV325...1250A2C540-3L

Governer no. : 0 420 232 565

Customer-spec. information  
 Customer : KHD

Engine : F6L913

1st version kW : 89.0  
 Rated speed : 2500

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60  
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1250

Rack travel in mm : 10.50...10.60

Del.quantity cm<sup>3</sup>/ : 6.2...6.3

100 s: (6.0...6.5)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

2nd speed rpm : 325.0

Rack travel in mm : 8.7...8.9

Del.quantity cm<sup>3</sup>/ : 1.2...1.8

100 s: (1.0...2.0)

Spread cm<sup>3</sup> : 0.2

100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.50

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1250

Del.quantity : 62.5...63.5

1000 : (60.5...65.5)

Spread cm<sup>3</sup> : 3.00

1000 : (5.00)

RATED SPEED

1st version

Control lever  
 position degrees: 98...106

Testing:

1st rack travel in: 9.50

Speed rpm : 1290...1300

2nd rack travel in: 4.00

Speed rpm : 1350...1380

4th rack travel in: 1525

Speed rpm : 0.30...1.40

Wheel Loader

LOW IDLE 1

Control lever

position degrees: 70...78

Setting point w/out bumper spring

Speed rpm : 325

Rack travel in mm : 7.0

Testing:

Speed rpm : 100

Minimum rack travel: 19.50

Speed rpm : 325

Rack travel in mm : 6.90...7.10

Rack travel in mm : 2.00

Speed rpm : 410...470

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1250

Rack travel in m: 10.50...10.60

2nd speed rpm : 500

Rack travel in m: 11.10...11.20

4th speed rpm : 1000

Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 800

Del.quantity cm<sup>3</sup>/ : 54.0...56.0

1000 s: (51.5...58.5)

Spread cm<sup>3</sup> : 2.50

1000 s: (4.)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.50

Speed rpm : 1290...1300

STARTING FUEL DELIVERY

Speed rpm : 100

Del.quantity cm<sup>3</sup>/ : 115.0...125.0

1000 s: (112.0...128.0)

Rack travel in mm : 17.60...18.00

Remarks:

:

APPLICATION

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BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : VAL 6,6 a 3  
 Edition : 24.04.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 400 876 321DK

Injection pump  
 Pump designation : PES6A95D32ORS2684  
 EP type number : 0 410 896 917  
 Governor  
 Governor design. : RSV325...105DAOC2178  
 -2R  
 Governor no. : 0 420 233 178

Customer-spec. information  
 Customer : VALMET

Engine : MF 3690

1st version kW : 140.0  
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.00

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 014

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X2.00X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.50...2.60  
 : (2.45...2.65)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BEGINNING OF DELIVERY DIFFERENCE

betw. rack trav. m: 9.00...12.00  
 & maximum rack tra: 21.00  
 Difference ° CS : 4.50...5.50

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 11.90...12.00

Del.quantity cm<sup>3</sup>/ : 10.9...11.1

100 s: (10.7...11.3)

Spread cm<sup>3</sup> : 0.3

100 s: (0.6)

2nd speed rpm : 500.0

Rack travel in mm : 3.8...4.0

Del.quantity cm<sup>3</sup>/ : 1.1...1.4

100 s: (0.8...1.6)

Spread cm<sup>3</sup> : 0.3

100 s: (0.5)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 2.75

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del.quantity : 109.0...111.0

1000 : (107.0...113.0)

Spread cm<sup>3</sup> : 3.50

1000 : (6.00)

RATED SPEED

1st version

Control lever  
position degrees: 81...14

Testing:  
1st rack travel in: 10.90  
Speed rpm : 1135...1145  
2nd rack travel in: 4.00  
Speed rpm : 1850...1215  
3rd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1360  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever  
position degrees: 64...72  
Setting point w/out bumper spring  
Speed rpm : 500  
Rack travel in mm : 3.4  
Speed rpm : 500  
Rack travel in mm : 3.80...4.00  
Rack travel in mm : 2.00  
Speed rpm : 510...570

TORQUE CONTROL  
Dimension a mm : 0.70  
Torque control curve - 1st version  
1st speed rpm : 1100  
Rack travel in m: 11.90...12.00  
2nd speed rpm : 500  
Rack travel in m: 11.90...-12.00

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.90  
Speed rpm : 1135...1145

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Rack travel in mm : 19.50...21.00

Remarks:

:

#### APPLICATION

Tractor (tractor engines)

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DAF 6,2 q 2  
 Edition : 27.05.91  
 Replaces : 28.3.91  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 377  
 Injection pump  
 Pump designation : PES6A95D32ORS2693Z  
 EP type number : 0 410 896 913  
 Governor  
 Governor design. : RSV300...1300AOC2248  
 -1R  
 Governor no. : 0 420 233 273

Customer-spec. information  
 Customer : DAF

Engine : NS156

1st version kW : 156.0  
 Rated speed : 2600

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.00...2.10  
 : (1.95...2.15)

Rack travel in mm : 7.50...10.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BEGINNING OF DELIVERY DIFFERENCE**

betw. rack trav. m: 8.50...9.50  
 & maximum rack tra: 21.00  
 Difference ° CS : 2.50...3.50

**BASIC SETTING**

1st speed rpm : 1000

Rack travel in mm : 12.00...12.10

Del. quantity cm<sup>3</sup>/ : 8.7...8.8  
 100 s: (8.5...9.0)

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.6)

2nd speed rpm : 300.0  
 Rack travel in mm : 6.3...6.5  
 Del. quantity cm<sup>3</sup>/ : 0.6...1.0  
 100 s: (0.3...1.2)  
 Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 3.75

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1000  
 Aneroid pressure h: 700  
 Del. quantity : 87.5...88.5  
 1000 : (85.5...90.5)  
 Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

**RATED SPEED**

1st version

Control Lever  
position degrees: 97...103

Testing:

1st rack travel in: 11.00  
Speed rpm : 1340...1350  
2nd rack travel in: 4.00  
Speed rpm : 1390...1420  
3rd rack travel in: 4.00  
Speed rpm : 1410...1440  
4th rack travel in: 1575  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 300  
Rack travel in mm : 6.30...6.50  
Rack travel in mm : 2.00  
Speed rpm : 580...640

TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1300  
Rack travel in m: 12.30...12.40  
2nd speed rpm : 500  
Rack travel in m: 12.30...12.50

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 12.00...12.10

Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.30...10.50  
2nd pressure hPa : 290  
Rack travel in m: 11.50...11.60  
3rd pressure hPa : 250  
Rack travel in m: 10.70...10.90

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -

L20

Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 53.5...54.5  
1000 s: (51.5...56.5)

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 11.00  
Speed rpm : 1340...1350

LOW IDLE

Speed rpm : 300  
Rack travel in mm : 6.30...6.50  
Del.quantity cm<sup>3</sup>/ : 6.0...10.0  
1000 s: (3.5...12.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : MB 6,0 c 9  
 Edition : 27.05.91  
 Replaces : 14.12.90  
 Test oil : ISO-4113  
 Combination no. : 0 400 876 380  
 Injection pump  
 Pump designation : PES6A90D410RS2710  
 EP type number : 0 410 896 082  
 Governor  
 Governor design. : RSV350...1200A1C1163  
 L  
 Governor no. : 0 420 232 546

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 74.0  
 Rated speed : 2400

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35  
 : (2.20...2.40)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 1200

Rack travel in mm : 9.30...9.40

Del.quantity cm<sup>3</sup>/ : 5.1...5.2

100 s: (4.9...5.4)

Spread cm<sup>3</sup> : 0.3

100 s: (0.4)

2nd speed rpm : 370.0

Rack travel in mm : 7.9...8.5

Del.quantity cm<sup>3</sup>/ : 1.0...1.2

100 s: (0.8...1.4)

Spread cm<sup>3</sup> : 0.2

100 s: (0.4)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.00

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 1200

Del.quantity : 51.0...52.0

1000 : (49.0...54.0)

Spread cm<sup>3</sup> : 3.00

1000 : (4.50)

**RATED SPEED**

1st version

Control lever

position degrees: 109...117

Testing:

1st rack travel in: 8.30

Speed rpm : 1240...1245

2nd rack travel in: 4.00

Speed rpm : 1267...1280

3rd rack travel in: 4.00

Speed rpm : 1300...1330  
4th rack travel in: 1400  
Speed rpm : 0.30...1.40  
5th rack travel in: 1255...1265  
Speed rpm : 8.30

#### LOW IDLE 1

Control lever  
position degrees: -3  
Setting point w/out bumper spring  
Speed rpm : 370  
Rack travel in mm : 8.2

#### Testing:

Speed rpm : 100  
Minimum rack travel: 19.50  
Speed rpm : 370  
Rack travel in mm : 8.10...8.30  
Rack travel in mm : 2.00  
Speed rpm : 460...520

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1200  
Rack travel in m: 9.30...9.40  
2nd speed rpm : 600  
Rack travel in m: 10.00...10.20  
3rd speed rpm : 900  
Rack travel in m: 9.80...10.10

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600  
Del.quantity cm3/ : 41.0...43.0  
1000 s: (38.5...45.5)  
Speed rpm : 900  
Del.quantity cm3/ : 46.0...49.0  
1000 s: (43.5...51.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 8.30  
Speed rpm : 1240...1245

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 85.0...95.0  
1000 s: (82.0...98.0)  
Rack travel in mm : 16.80...17.20

#### LOW IDLE

Speed rpm : 370  
Rack travel in mm : 7.90...8.50  
Del.quantity cm3/ : 10.0...12.0  
1000 s: (8.0...14.0)  
Spread cm3 : 2.50  
1000 s: (4.50)

#### Remarks:

Set pneumatic shutoff device to  
control-rod stop = 0.5...1.5 mm  
control-rod travel at 4.5 bar  
atmospheric pressure.

#### APPLICATION

Unimog



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 6,0 c 11  
 Edition : 27.05.91  
 Replaces : 14.12.90  
 Test oil : ISO-4113

Combination no. : 0 400 876 385

Injection pump  
 Pump designation : PES6A90D410RS2710  
 EP type number : 0 410 896 082  
 Governor  
 Governor design. : RSV350...1400AOC1163  
 -1  
 Governor no. : 0 420 232 552

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 366

1st version kW : 96.0  
 Rated speed : 2800

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 000

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.25...2.35  
 : (2.20...2.40)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 1400

Rack travel in mm : 10.80...10.90

Del. quantity cm<sup>3</sup>/ : 6.0...6.1  
 100 s: (5.8...6.3)

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

2nd speed rpm : 350.0  
 Rack travel in mm : 8.8...9.4  
 Del. quantity cm<sup>3</sup>/ : 1.0...1.4  
 100 s: (0.8...1.6)

Spread cm<sup>3</sup> : 0.2  
 100 s: (0.4)

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3

Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 6.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1400  
 Del. quantity : 60.5...61.5  
 1000 : (58.5...63.5)

Spread cm<sup>3</sup> : 3.00  
 1000 : (5.00)

RATED SPEED

1st version  
 Control Lever  
 position degrees: 109...117

Testing:  
 1st rack travel in: 9.80  
 Speed rpm : 1435...1440  
 2nd rack travel in: 4.00  
 Speed rpm : 1475...1488  
 3rd rack travel in: 4.00

Speed rpm : 1515...1545  
4th rack travel in: 1575  
Speed rpm : 0.30...1.40  
5th rack travel in: 1440...1450  
Speed rpm : 9.80

#### LOW IDLE 1

Control lever  
position degrees: -3  
Setting point w/out bumper spring  
Speed rpm : 350  
Rack travel in mm : 9.1

#### Testing:

Speed rpm : 100  
Minimum rack trave: 19.50  
Speed rpm : 350  
Rack travel in mm : 9.00...9.20  
Rack travel in mm : 2.00  
Speed rpm : 470...530

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 1400  
Rack travel in m: 10.80...10.90  
2nd speed rpm : 500  
Rack travel in m: 12.10...12.20  
3rd speed rpm : 750  
Rack travel in m: 11.80...12.00  
4th speed rpm : 950  
Rack travel in m: 11.40...11.70

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Speed rpm : 600  
Del.quantity cm3/ : 52.0...54.0  
1000 s: (49.5...56.5)

#### BREAKAWAY

##### 1st version

1mm rack travel less than

full load rack tr: 9.80  
Speed rpm : 1435...1440

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 78.0...88.0  
1000 s: (75.0...91.0)  
Rack travel in mm : 16.90...17.30

#### LOW IDLE

Speed rpm : 350

L24

Rack travel in mm : 8.80...9.40  
Del.quantity cm3/ : 10.0...14.0  
1000 s: (8.0...16.0)  
Spread cm3 : 2.50  
1000 s: (4.50)

Remarks:

Set pneumatic shutoff device to  
control-rod stop = 0.5...1.5 mm  
control-rod travel at 4.5 bar  
atmospheric pressure.  
APPLICATION

Unimog

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : SSC 14,0 a1  
 Edition : 27.05.91  
 Replaces : 22.5.87  
 Test oil : ISO-4113

Combination no. : 0 401 830 711

Injection pump  
 Pump designation : PE12P100A520/6RS3103  
 -1

EP type number : 0 411 800 703  
 Governor  
 Governor design. : RGV375...1000PA639-2  
 Governor no. : 0 421 813 514

Customer-spec. information  
 Customer : SSCM

Engine : V 12.520 AN

1st version kw : 220.0  
 Rated speed : 2000

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00  
 Firing order : 1- 8- 5- 10- 3- 7-  
 6- 11- 2- 9- 4- 12

Phasing : 0-15-60-75-120-135-  
 180-195-240-255-300-  
 315  
 Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 1000

---

Rack travel in mm : 11.60...11.70

---

Del. quantity cm<sup>3</sup>/ : 9.3...9.5

---

100 s: (9.1...9.7)

---

Spread cm<sup>3</sup> : 0.3

---

100 s: (0.6)

2nd speed rpm : 375.0  
 Rack travel in mm : 7.6...7.8  
 Del. quantity cm<sup>3</sup>/ : 1.0...1.4  
 100 s: (0.7...1.6)

Spread cm<sup>3</sup> : 0.3  
 100 s: (0.5)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 350  
 travel mm : 1.10...1.60  
 2nd speed rpm : 450  
 travel mm : 3.30...3.70  
 3rd speed rpm : 700  
 travel mm : 5.20...5.60  
 4th speed rpm : 1000  
 travel mm : 7.60...7.80

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1  
 Speed rpm : 1075  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1000  
 Del. quantity : 93.5...95.5  
 1000 : (91.5...97.5)

Spread cm<sup>3</sup> : 3.50  
 1000 : (6.00)

RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 10.60  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1125...1155  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 71...79

Testing:  
Speed rpm : 100  
Minimum rack travel: 9.20  
Speed rpm : 375  
Rack travel in mm : 7.60...7.80

CONSTANT REGULATION  
Speed rpm : 375...475

START CUT-OUT  
Speed 1/min : 320 (340)

BREAKAWAY  
1st version  
1mm rack travel less than  
full load rack tr: 10.60  
Speed rpm : 1040...1050

STARTING FUEL DELIVERY  
Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 230.0...250.0  
1000 s: (226.0...254.0)

LOW IDLE  
Speed rpm : 375  
Rack travel in mm : 7.60...7.80  
Del.quantity cm<sup>3</sup>/ : 10.0...14.0  
1000 s: (7.5...16.5)  
Spread cm<sup>3</sup> : 3.50  
1000 s: (5.50)

Remarks:  
:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : RVI 9,8 h  
 Edition : 23.11.90  
 Replaces : 5.3.90  
 Test oil : ISO-4113

Combination no. : 0 401 846 561

Injection pump  
 Pump designation : PE6P120A320RS519  
 EP type number : 0 411 826 145  
 Governor  
 Governor design. : RQ275/1050PA899  
 Governor no. : 0 421 801 460

Customer-spec. information

Customer : RVI

Engine : MIHS 06.20.45

1st version kW : 185.0  
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 1050

---

Rack travel in mm : 11.10...11.20

---

Del. quantity cm<sup>3</sup>/ : 16.4...16.6

---

100 s: (16.1...16.9)

---

Spread cm<sup>3</sup> : 0.5

---

100 s: (0.9)

2nd speed rpm : 275.0

Rack travel in mm : 5.5...5.9

Del. quantity cm<sup>3</sup>/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1050  
 Aneroid pressure h: 700  
 Del. quantity : 164.0...166.0

1000 : (161.0...169.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

RATED SPEED

1st version  
 Setting point:  
 Speed rpm : 600  
 Rack travel in mm : 20.0

Testing:  
 1st rack travel in: 10.10

Speed rpm : 1105...1120  
2nd rack travel in: 4.00  
Speed rpm : 1205...1235  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE :

Setting point w/out bumper spring  
Speed rpm : 275  
Rack travel in mm : 5.4

#### Testing:

Speed rpm : 200  
Minimum rack travel: 6.50  
Speed rpm : 275  
Rack travel in mm : 5.60...5.80  
Rack travel in mm : 2.10  
Speed rpm : 430...470

Aneroid/Altitude  
Compensator Test

#### 1st version

Setting  
Speed rpm : 500  
Pressure hPa : 700  
Rack travel mm : 11.10...11.20

#### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.70...9.90  
2nd pressure hPa : 260  
Rack travel in m: 10.60...10.70  
3rd pressure hPa : 220  
Rack travel in m: 10.00...10.20

#### START CUT-OUT

Speed 1/min : 195 (215)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 700  
Speed rpm : 700  
Del. quantity cm<sup>3</sup>/ : 155.0...161.0  
1000 s: (152.0...164.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 100.0...105.0  
1000 s: (100.0...108.0)

#### BREAKAWAY

1st version

L28

1mm rack travel less than

full load rack tr: 10.10  
Speed rpm : 1105...1120

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 135.0...165.0  
1000 s: (131.0...169.0)

#### LOW IDLE

Speed rpm : 275  
Rack travel in mm : 5.50...5.90  
Del. quantity cm<sup>3</sup>/ : 13.0...19.0  
1000 s: (10.0...22.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

Remarks:

#### APPLICATION

Omnibus

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : DAF 11,7 o1  
 Edition : 27.05.91  
 Replaces : 24.4.91  
 Test oil : ISO-4113

Combination no. : 0 401 846 568

Injection pump  
 Pump designation : PE6P110A32ORS529  
 EP type number : 0 411 816 179  
 Governor  
 Governor design. : RQ275/1000PA1012  
 Governor no. : 0 421 801 595

Customer-spec. information  
 Customer : DAF

Engine : LT 195 G

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 14.50...15.50  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BEGINNING OF DELIVERY DIFFERENCE**

betw. rack trav. m: 5.20...5.40  
 & maximum rack tra: 14.7...15.7  
 Difference ° CS : 2.00...4.00

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 15.70...15.80

Del.quantity cm<sup>3</sup>/ : 19.3...19.5

100 s: (19.0...19.7)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

2nd speed rpm : 300.0

Rack travel in mm : 7.7...7.9

Del.quantity cm<sup>3</sup>/ : 2.2...2.7

100 s: (1.9...2.9)

Spread cm<sup>3</sup> : 0.4

100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 1000

Del.quantity : 193.0...195.0

1000 : (190.5...197.5)

Spread cm<sup>3</sup> : 4.00

1000 : (7.50)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 14.20

Speed rpm : 1025...1040

2nd rack travel in: 4.00

Speed rpm : 1105...1135  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

#### LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.8

#### Testing:

Speed rpm : 100  
Minimum rack travel: 11.20  
Speed rpm : 300  
Rack travel in mm : 7.70...7.90  
Rack travel in mm : 2.00  
Speed rpm : 350...390

#### TORQUE CONTROL

Dimension a mm : 0.30  
Torque control curve - 1st version  
1st speed rpm : 980  
Rack travel in m: 15.20...15.40  
2nd speed rpm : 600  
Rack travel in m: 16.00...16.30  
3rd speed rpm : 750  
Rack travel in m: 15.55...15.75  
4th speed rpm : 825  
Rack travel in m: 15.30...15.50

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 15.70...15.80

#### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 13.10...13.30  
2nd pressure hPa : 440  
Rack travel in m: 15.10...15.20  
3rd pressure hPa : 340  
Rack travel in m: 13.70...13.90

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1000  
Speed rpm : 980  
Del.quantity cm<sup>3</sup>/ : 178.0...182.0  
1000 s: (175.0...185.0)  
Aneroid pressure h: -  
Speed rpm : 600

Del.quantity cm<sup>3</sup>/ : 132.0...134.0  
1000 s: (129.5...136.5)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 14.20  
Speed rpm : 1025...1040

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 290.0...330.0  
1000 s: (287.0...333.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 7.70...7.90  
Del.quantity cm<sup>3</sup>/ : 22.0...27.0  
1000 s: (19.5...29.5)  
Spread cm<sup>3</sup> : 4.50  
1000 s: (7.50)

#### Remarks:

:  
Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.



BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : ENA 11,9 c  
 Edition : 27.05.91  
 Replaces : 1.12.89  
 Test oil : ISO-4113

Combination no. : 0 401 846 860

Injection pump  
 Pump designation : PE6P120A320RS3200  
 EP type number : 0 411 826 766  
 Governor  
 Governor design. : RQV250...1000PA808-1  
 Governor no. : 0 421 813 660

Customer-spec. information

Customer : ENASA

Engine : 96 R1 BX

1st version kW : 265.0  
 Rated speed : 2000

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 1 688 901 019

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter x Wall thickness x Length : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.80...3.90  
 : (3.75...3.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 600

Rack travel in mm : 11.90...12.00

Del. quantity cm<sup>3</sup>/ : 24.9...25.1

100 s: (24.6...25.4)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 250.0

Rack travel in mm : 3.3...3.7

Del. quantity cm<sup>3</sup>/ : 1.7...2.3

100 s: (1.4...2.6)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 250  
 travel mm : 1.00...1.40

2nd speed rpm : 350  
 travel mm : 2.10...2.60

3rd speed rpm : 700  
 travel mm : 4.70...5.30

4th speed rpm : 1055  
 travel mm : 7.90...8.10

5th speed rpm : 1145  
 travel mm : 9.00...9.40

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 1070

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 600

Aneroid pressure h: 1200

Del.quantity : 249.0...251.0  
1000 : (246.0...254.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 115...123

Testing:  
1st rack travel in: 10.90  
Speed rpm : 1050...1060  
2nd rack travel in: 4.00  
Speed rpm : 1130...1160  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 73...81

Testing:  
Speed rpm : 100  
Minimum rack travel: 5.00  
Speed rpm : 250  
Rack travel in mm : 3.30...3.70

CONSTANT REGULATION  
Speed rpm : 250...330

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1200  
Rack travel mm : 11.90...12.00

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.50...8.90  
2nd pressure hPa : 680  
Rack travel in m: 11.30...11.40  
3rd pressure hPa : 420  
Rack travel in m: 9.50...9.70

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1200  
Speed rpm : 900  
Del.quantity cm<sup>3</sup>/ : 244.0...250.0  
1000 s: (241.0...253.0)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 149.0...152.0  
1000 s: (146.5...154.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.90  
Speed rpm : 1050...1060

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 155.0...175.0  
1000 s: (151.0...179.0)  
Rack travel in mm : 19.50...21.00

Remarks:

Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,7 L 5  
 Edition : 27.05.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 401 848 816

Injection pump  
 Pump designation : PE8P110A320LS3846-1  
 EP type number : 0 411 818 719  
 Governor  
 Governor design. : RQ300/1050PA1007  
 Governor no. : 0 421 801 588

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM442

1st version kW : 195.0  
 Rated speed : 2100

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 101

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,6

Test lines : 1 680 750 008

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x2.00x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1050

Rack travel in mm : 11.10...11.20

Del.quantity cm<sup>3</sup>/ : 11.4...11.6

100 s: (11.4...11.6)

Spread cm<sup>3</sup> : 0.8

2nd speed rpm : 300.0

Rack travel in mm : 7.0...7.6

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.4)

Spread cm<sup>3</sup> : 0.6

100 s: (1.1)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 650

Rack travel in mm : 13.10...13.90

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050

Del.quantity : 114.0...116.0

1000 : (114.0...116.0)

Spread cm<sup>3</sup> : 8.50

RATED SPEED

1st version

Setting point:

Speed rpm : 650

Rack travel in mm : 13.5

Testing:

1st rack travel in: 10.10

Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1300  
Speed rpm : 0.00...2.00

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.3

Testing:

Speed rpm : 200  
Minimum rack trave: 9.20  
Speed rpm : 300  
Rack travel in mm : 7.00...7.60  
Rack travel in mm : 2.00  
Speed rpm : 400...440

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600  
Del.quantity cm3/ : 110.0...116.0  
1000 s: (107.0...119.0)  
Spread cm3 : 11.00  
1000 s: (14.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.10  
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : KHD 16,0 e  
 Edition : 27.05.91  
 Replaces : 24.4.91  
 Test oil : ISO-4113  
 Combination no. : 0 401 849 752  
 Injection pump  
 Pump designation : PE10P110A920/5LS3276  
 EP type number : 0 411 819 712  
 Governor  
 Governor design. : RQV300...1150PA997  
 Governor no. : 0 421 813 927

Customer-spec. information  
 Customer : KHD

Engine : F 10L513

1st version kW : 223.0  
 Rated speed : 2300

**TEST BENCH REQUIREMENTS**

Test oil inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder assembly : 0 681 343 009

Opening pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter x Wall thickness x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 3.10...3.20  
 : (3.05...3.25)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 10- 9- 4- 3- 6-  
 5- 8- 7- 2

Phasing : 0-27-72-99-144-171-  
 216-243-288-315  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 1150  
 Rack travel in mm : 9.90...10.00  
 Del.quantity cm<sup>3</sup>/ : 10.8...11.0  
 100 s : (10.5...11.3)  
 Spread cm<sup>3</sup> : 0.4  
 100 s : (0.7)

2nd speed rpm : 350.0  
 Rack travel in mm : 5.4...5.6  
 Del.quantity cm<sup>3</sup>/ : 1.2...1.7  
 100 s : (1.0...2.0)  
 Spread cm<sup>3</sup> : 0.4  
 100 s : (0.7)

(B) Setting of injection pump with governor

**GUIDE SLEEVE TRAVEL**  
 1st speed rpm : 375  
 travel mm : 2.30...2.70  
 2nd speed rpm : 510  
 travel mm : 3.60...4.10  
 3rd speed rpm : 870  
 travel mm : 7.40...7.90  
 4th speed rpm : 1200  
 travel mm : 9.90...10.40  
 5th speed rpm : 1300  
 travel mm : 10.90...11.30

**GUIDE SLEEVE POSITION**  
 Control-lever position  
 Degree: -1  
 Speed rpm : 1250  
 Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 1150  
 Del.quantity : 108.0...110.0  
 1000 : (105.0...113.0)

Spread cm<sup>3</sup> : 4.00  
1000 : (7.50)

#### RATED SPEED

1st version  
Control lever  
position degrees: 44...52

#### Testing:

1st rack travel in: 8.90  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1270...1300  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 15...23

#### Testing:

Speed rpm : 100  
Minimum rack trave: 7.10  
Speed rpm : 350  
Rack travel in mm : 4.40...4.60

#### CONSTANT REGULATION

Speed rpm : 300...420

#### START CUT-OUT

Speed 1/min : 220 (0)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Speed rpm : 700  
Del.quantity cm<sup>3</sup>/ : 100.0...104.0  
1000 s: (97.0...107.0)  
Spread cm<sup>3</sup> : 6.00  
1000 s: (9.)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 8.90  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 135.0...165.0  
1000 s: (131.0...169.0)

LOW IDLE

Speed rpm : 350  
Rack travel in mm : 4.40...4.60

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : DAF 11,6o17  
 Edition : 29.05.91  
 Replaces : 24.4.91  
 Test oil : ISO-4113

Combination no. : 0 401 876 295R

Injection pump  
 Pump designation : PE6P120A32ORS415-1R  
 EP type number : 0 411 826 123  
 Governor  
 Governor design. : RSV250...1000P5A508-1  
 Govenrer no. : 0 421 833 194

Cust. part no. : 0763424

Customer-spec. information  
 Customer : DAF

Engine : DKXD 1160 ATi M

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 850

---

Rack travel in mm : 11.10...11.20

---

Del.quantity cm3/ : 17.6...17.8  
 100 s: (17.3...18.1)

---

Spread cm3 : 0.5  
 100 s: (0.9)

2nd speed rpm : 250.0  
 Rack travel in mm : 6.7...6.9  
 Del.quantity cm3/ : 1.4...2.0  
 100 s: (1.1...2.3)  
 Spread cm3 : 0.8  
 100 s: (1.2)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.75

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 850  
 Aneroid pressure h: 700  
 Del.quantity : 176.0...178.0  
 1000 : (173.0...181.0)  
 Spread cm3 : 5.00  
 1000 : (9.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: ?

Testing:  
 1st rack travel in: 10.00  
 Speed rpm : 1035...1045

2nd rack travel in: 4.00  
Speed rpm : 1115...1145  
3rd rack travel in: 4.00  
Speed rpm : 1190...1220  
4th rack travel in: 1350  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 19...27  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 6.0

#### Testing:

Speed rpm : 100  
Speed rpm : 250  
Rack travel in mm : 6.40...6.60  
Rack travel in mm : 2.00  
Speed rpm : 630...690

#### TORQUE CONTROL

Torque control curve - 1st version  
1st speed rpm : 850  
Rack travel in m: 11.40...11.50  
2nd speed rpm : 400  
Rack travel in m: 11.40...11.60  
3rd speed rpm : 300  
Rack travel in m: 11.70...12.20

#### Aneroid/Altitude Compensator Test

#### 1st version

Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 11.10...11.20

#### Measurement

Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 10.30...10.50  
2nd pressure hPa : 210  
Rack travel in m: 10.70...10.90

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm<sup>3</sup>/ : 140.0...142.0  
1000 s: (137.0...145.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.00  
Speed rpm : 1035...1045

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 305.0...345.0  
1000 s: (301.0...349.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.40...6.60

Remarks:

:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : DAF 11,6t33  
 Edition : 29.05.91  
 Replaces : 24.4.91  
 Test oil : ISO-4113

Combination no. : 0 401 876 297Y

Injection pump  
 Pump designation : PE6P110A32ORS385-1Y  
 EP type number : 0 411 816 146  
 Governor  
 Governor design. : RSV250...750P7A507  
 Governor no. : 0 421 833 185

Cust. part no. : 0290321

Customer-spec. information  
 Customer : DAF

Engine : DKTD 1160(1500)

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
 : (2.75...2.95)

Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

**BASIC SETTING**

1st speed rpm : 700

Rack travel in mm : 11.80...12.00

Del.quantity cm<sup>3</sup>/ : 15.2...15.4  
 100 s: (14.9...15.6)

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

2nd speed rpm : 250.0

Rack travel in mm : 6.8...7.0

Del.quantity cm<sup>3</sup>/ : 2.5...3.3  
 100 s: (2.2...3.5)

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.00

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 700

Del.quantity : 152.0...154.0  
 1000 : (149.5...156.5)

Spread cm<sup>3</sup> : 4.00  
 1000 : (7.50)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: 90...98

Testing:

1st rack travel in: 10.80  
 Speed rpm : 750...755

2nd rack travel in: 4.00  
 Speed rpm : 780...795

4th rack travel in: 950  
 Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever

position degrees: 66...74

Setting point w/out bumper spring

Speed rpm : 250

Rack travel in mm : 6.9

Speed rpm : 250

Rack travel in mm : 6.80...7.00

Rack travel in mm : 2.00

Speed rpm : 265...325

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 10.80

Speed rpm : 750...755

LOW IDLE

Speed rpm : 250

Rack travel in mm : 6.80...7.00

Del.quantity cm<sup>3</sup>/ : 25.0...33.0

1000 s: (22.5...35.5)

Spread cm<sup>3</sup> : 4.50

1000 s: (7.50)

Remarks:

:

APPLICATION

Generator

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : DAF 11,6o23  
Edition : 27.05.91  
Replaces : -  
Test oil : ISO-4113

Combination no. : 0 401 876 344

Injection pump  
Pump designation : PE6P120A32ORS415-1Z  
EP type number : 0 411 826 136  
Governor  
Governor design. : RSV250...1100P5A508-8  
Governor no. : 0 421 833 298

Customer-spec. information  
Customer : DAF

Engine : KT 200

TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
assembly : 1 688 901 019

Opening  
pressure, bar : 207...210

Orifice plate  
diameter mm : 0,8

Test Lines : 1 680 750 067

Outside diameter  
x Wall thickness  
x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 2.80...2.90  
: (2.75...2.95)

Rack travel in mm : 9.00...12.00  
Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300  
Tolerance + - ° : 0.50 (0.75)

BASIC SETTING

1st speed rpm : 850

Rack travel in mm : 10.30...10.40

Del.quantity cm3/ : 16.0...16.2  
100 s: (15.7...16.5)

Spread cm3 : 0.5  
100 s: (0.9)

2nd speed rpm : 250.0  
Rack travel in mm : 6.7...6.9  
Del.quantity cm3/ : 1.4...2.0  
100 s: (1.1...2.3)

Spread cm3 : 0.8  
100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position  
Degree: -3  
Speed rpm : 800  
Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
Click setting x : 3.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 850  
Aneroid pressure h: 700  
Del.quantity : 160.0...162.0  
1000 : (157.0...165.0)

Spread cm3 : 5.00  
1000 : (9.00)

RATED SPEED

1st version  
Control lever  
position degrees: 95...103

Testing:  
1st rack travel in: 9.30  
Speed rpm : 1125...1135  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195

3rd rack travel in: 4.00  
Speed rpm : 1200...1230  
4th rack travel in: 1375  
Speed rpm : 0.30...1.40

LOW IDLE 1  
Control lever  
position degrees: 66...74  
Setting point w/out bumper spring  
Speed rpm : 250  
Rack travel in mm : 5.6

Testing:  
Speed rpm : 100  
Speed rpm : 250  
Rack travel in mm : 6.00...6.20  
Rack travel in mm : 2.00  
Speed rpm : 610...710

TORQUE CONTROL  
Torque control curve - 1st version  
1st speed rpm : 400  
Rack travel in m: 10.50...10.70  
2nd speed rpm : 300  
Rack travel in m: 10.80...11.30

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 700  
Rack travel mm : 10.30...10.40

Measurement  
Speed 1/min : 600

1st pressure hPa : -  
Rack travel in m: 9.80...10.00  
2nd pressure hPa : 180  
Rack travel in m: 10.10...10.20

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: -  
Speed rpm : 600  
Del.quantity cm3/ : 131.5...133.5  
1000 s: (128.5...136.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9.30

Speed rpm : 1125...1135

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 310.0...350.0  
1000 s: (306.0...354.0)  
Rack travel in mm : 19.50...21.00

#### LOW IDLE

Speed rpm : 250  
Rack travel in mm : 6.00...6.20

Remarks:

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BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : PEN 7,1 c 4
Edition : 27.05.91
Replaces : 16.1.91
Test oil : ISO-4113
Combination no. : 0 401 876 781
Injection pump
Pump designation : PE6P110A320RS3147
EP type number : 0 411 816 743
Governor
Governor design. : RSV650...750P4A421-2
Governor no. : 0 421 833 336

Customer-spec. information
Customer : PENTA

Engine : TD71AG

1st version kW : 127.0
Rated speed : 1500

TEST BENCH REQUIREMENTS

Test oil
inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder
assembly : 0 681 343 009

Opening
pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00x1.50x600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 3.50...3.60
: (3.45...3.65)

Rack travel in mm : 9.00...12.00

M15

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 10.70...10.80

Del.quantity cm3/ : 14.0...14.2

100 s: (13.7...14.5)

Spread cm3 : 0.4

100 s: (0.7)

2nd speed rpm : 650.0

Rack travel in mm : 4.5...4.7

Del.quantity cm3/ : 1.7...2.1

100 s: (1.4...2.3)

Spread cm3 : 0.6

100 s: (0.9)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 5.25

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 700

Del.quantity : 140.0...142.0

1000 : (137.0...145.0)

Spread cm3 : 4.00

1000 : (7.50)

RATED SPEED

1st version

Control lever

position degrees: 86...94

Testing:

1st rack travel in: 9.70

Speed rpm : 742...747

2nd rack travel in: 4.00

Speed rpm : 771...784

4th rack travel in: 940  
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever  
position degrees: 81...89  
Setting point w/out bumper spring  
Speed rpm : 650  
Rack travel in mm : 4.6  
Speed rpm : 650  
Rack travel in mm : 4.50...4.70  
Rack travel in mm : 2.00  
Speed rpm : 635...695

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 160.0...180.0  
1000 s: (156.0...184.0)  
Rack travel in mm : 20.00...21.00

LOW IDLE

Speed rpm : 650  
Rack travel in mm : 4.50...4.70  
Del.quantity cm3/ : 17.0...21.0  
1000 s: (14.5...23.5)  
Spread cm3 : 6.00  
1000 s: (9.00)

Remarks:

:

APPLICATION

Generator set

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

**Note remarks**

Test sheet : PEN 12,1 b1  
 Edition : 27.05.91  
 Replaces : 16.1.91  
 Test oil : ISO-4113

Combination no. : 0 401 876 782

Injection pump  
 Pump designation : PE6P120A32ORS3189  
 EP type number : 0 411 826 759  
 Governor  
 Governor design. : RSV650...750P4A421-3  
 Governor no. : 0 421 833 337

Customer-spec. information  
 Customer : PENTA

Engine : TD121GG

1st version kW : 199.0  
 Rated speed : 1500

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**  
 Test pressure, bar: 25...27

Prestroke mm : 2.60...2.70  
 : (2.55...2.75)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 700

Rack travel in mm : 11.40...11.50

Del.quantity cm3/ : 24.1...24.3

100 s: (23.8...24.6)

Spread cm3 : 0.5

100 s: (0.9)

2nd speed rpm : 650.0

Rack travel in mm : 3.3...3.5

Del.quantity cm3/ : 2.0...2.4

100 s: (1.7...2.7)

Spread cm3 : 0.5

100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension

Click setting x : 4.75

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 700

Del.quantity : 241.0...243.0

1000 : (238.0...246.0)

Spread cm3 : 5.00

1000 : (9.00)

**RATED SPEED**

1st version

Control lever

position degrees: 92...100

Testing:

1st rack travel in: 10.40

Speed rpm : 750...755  
2nd rack travel in: 4.00  
Speed rpm : 791...804  
4th rack travel in: 950  
Speed rpm : 0.30...1.70

LOW IDLE 1

Control lever  
position degrees: 85...93  
Setting point w/out bumper spring  
Speed rpm : 650  
Rack travel in mm : 3.4  
Speed rpm : 650  
Rack travel in mm : 3.30...3.50  
Rack travel in mm : 2.00  
Speed rpm : 630...690

SET IDLE AUXILIARY SPRING  
Rack travel in mm : 2.00

BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 10.40  
Speed rpm : 750...755

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 480.0...520.0  
1000 s: (-)  
Rack travel in mm : 20.00...21.00

Remarks:

:

APPLICATION

Generator



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : PEN 12,1 b2  
 Edition : 27.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 401 876 784  
 Injection pump  
 Pump designation : PE6P120A320RS3189  
 EP type number : 0 411 826 759  
 Governor  
 Governor design. : RSV650...750P4A421-7  
 Governor no. : 0 421 833 359

Customer-spec. information  
 Customer : PENTA

Engine : TID 71 AG

**TEST BENCH REQUIREMENTS**

Test oil inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder assembly : 1 688 901 019  
 Opening pressure, bar : 207...210  
 Orifice plate diameter mm : 0,8  
 Test lines : 1 680 750 067  
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27  
 Prestroke mm : 2.60...2.70  
 : (2.55...2.75)  
 Rack travel in mm : 9.00...12.00

M19

Firing order : 1- 5- 3- 6- 2- 4  
 Phasing : 0-60-120-180-240-300  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 1

**BASIC SETTING**

1st speed rpm : 700  
 Rack travel in mm : 8.90...9.00  
 Del.quantity cm3/ : 17.3...17.5  
 100 s: (17.0...17.8)  
 Spread cm3 : 0.5  
 100 s: (0.9)  
 2nd speed rpm : 650.0  
 Rack travel in mm : 3.3...3.5  
 Del.quantity cm3/ : 2.0...2.4  
 100 s: (1.7...2.7)  
 Spread cm3 : 0.5  
 100 s: (0.7)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -3  
 Speed rpm : 800  
 Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : 4.50

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 700  
 Del.quantity : 173.0...175.0  
 1000 : (170.0...178.0)  
 Spread cm3 : 5.00  
 1000 : (9.00)

**RATED SPEED**

1st version  
 Control lever  
 position degrees: 90...98

Testing:  
 1st rack travel in: 7.90  
 Speed rpm : 750...755  
 2nd rack travel in: 4.00  
 Speed rpm : 772...785

4th rack travel in: 900  
Speed rpm : 0.30...1.40

#### LOW IDLE 1

Control lever  
position degrees: 84...92  
Setting point w/out bumper spring  
Speed rpm : 650  
Rack travel in mm : 3.4  
Speed rpm : 650  
Rack travel in mm : 3.30...3.50  
Rack travel in mm : 2.00  
Speed rpm : 630...690

#### SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 7.90  
Speed rpm : 750...755

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 480.0...520.0  
1000 s: (-)  
Rack travel in mm : 20.00...21.00

#### HIGH IDLE

1st version  
Rack travel in mm : 3.80...4.20  
Spread cm<sup>3</sup> : 5.00  
1000 s: (8.00)

Remarks:

:

#### APPLICATION

Generator set

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 14,6 p 5  
 Edition : 27.05.91  
 Replaces : 18.2.91  
 Test oil : ISO-4113

Combination no. : 0 401 878 711

Injection pump  
 Pump designation : PE8P120A320LS3816-10  
 EP type number : 0 411 828 715  
 Governor  
 Governor design. : RSV650...1150POA823-5  
 Governor no. : 0 421 833 280

Customer-spec. information  
 Customer : DAIMLER-BENZ

Engine : OM422A

1st version kw : 206.0  
 Rated speed : 2300

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

M21

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 4.00...4.10  
 : (3.95...4.15)

Rack travel in mm : 9.00...12.00

Firing order : 8- 7- 2- 6- 3- 5-  
 4- 1

Phasing : 0-45-90-135-180-225-  
 270-315

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 8

BASIC SETTING

1st speed rpm : 1180

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Rack travel in mm : 9.40...9.50

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Del.quantity cm<sup>3</sup>/ : 13.5...13.7

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100 s: (13.2...14.0)

---

Spread cm<sup>3</sup> : 0.5

---

100 s: (0.9)

---

2nd speed rpm : 650.0

Rack travel in mm : 3.3...3.6

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -3

Speed rpm : 800

Rack travel in mm : 0.30...0.70

Governor spring pre-tension  
 Click setting x : ?

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1180  
 Del.quantity : 135.0...137.0

1000 : (132.0...140.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

RATED SPEED

1st version

Control lever  
position degrees: 46...54

Testing:

1st rack travel in: 8.40  
Speed rpm : 1210...1215  
2nd rack travel in: 4.00  
Speed rpm : 1232...1247  
4th rack travel in: 1400  
Speed rpm : 0.30...1.40

LOW IDLE 1

Control lever  
position degrees: 24...32  
Setting point w/out bumper spring  
Speed rpm : 650  
Rack travel in mm : 3.4  
Speed rpm : 650  
Rack travel in mm : 3.30...3.60  
Rack travel in mm : 2.00  
Speed rpm : 655...695

SET IDLE AUXILIARY SPRING

Rack travel in mm : 2.00

TORQUE CONTROL

Torque control curve - 1st version

1st speed rpm : 1180  
Rack travel in m: 9.40...9.50  
2nd speed rpm : 950  
Rack travel in m: 10.80...11.10  
3rd speed rpm : 1050  
Rack travel in m: 10.40...10.60

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 900  
Del.quantity cm<sup>3</sup>/ : 158.0...161.0  
1000 s: (155.0...164.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Speed rpm : 1075  
Del.quantity cm<sup>3</sup>/ : 148.0...152.0  
1000 s: (145.0...155.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 8.40  
Speed rpm : 1210...1215

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 140.0...160.0  
1000 s: (136.0...164.0)

LOW IDLE

Speed rpm : 650  
Rack travel in mm : 3.30...3.60  
Del.quantity cm<sup>3</sup>/ : 16.0...22.0  
1000 s: (13.0...25.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.00)

Remarks:

:  
Engine-speed difference between 1 mm regulated and control-rod travel 4 mm = 25...35 1/min.

When adjusting and checking, adjust speed regulation to 1210...1220 l/min. Afterwards, readjust speed regulation to 1160...1170 l/min.

APPLICATION

Forage harvester

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : MB 11,7 j  
 Edition : 27.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 825  
 Injection pump  
 Pump designation : PES6P110A820LS3282  
 EP type number : 0 412 016 736  
 Governor  
 Governor design. : RQ300/1100PA800-2  
 Governor no. : 0 421 801 593

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 h

1st version kW : 157.0  
 Rated speed : 2200

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY  
 Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 19.00...21.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

BASIC SETTING

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del. quantity cm<sup>3</sup>/ : 13.6...13.8

100 s: (13.3...14.0)

Spread cm<sup>3</sup> : 0.4

100 s: (0.8)

2nd speed rpm : 300.0  
 Rack travel in mm : 7.2...7.4  
 Del. quantity cm<sup>3</sup>/ : 1.4...2.0  
 100 s: (1.1...2.3)

Spread cm<sup>3</sup> : 0.4  
 100 s: (0.8)

GUIDE SLEEVE POSITION

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1100

Del. quantity : 136.0...138.0

1000 : (133.5...140.5)

Spread cm<sup>3</sup> : 4.00

1000 : (8.00)

RATED SPEED

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 9.90

Speed rpm : 1140...1150

2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1250  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.3

Testing:  
Speed rpm : 200  
Minimum rack trave: 8.80  
Speed rpm : 300  
Rack travel in mm : 7.20...7.40  
Rack travel in mm : 2.00  
Speed rpm : 370...410

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Speed rpm : 600  
Del.quantity cm3/ : 113.0...116.0  
1000 s: (110.0...119.0)  
Spread cm3 : 5.00  
1000 s: (9.00)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 9.90  
Speed rpm : 1140...1150

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:  
:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 11,7 j 1  
 Edition : 27.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 046 826  
 Injection pump  
 Pump designation : PES6P110A820LS3282  
 EP type number : 0 412 016 736  
 Governor  
 Governor design. : RQ300/1100PA786-2  
 Governor no. : 0 421 801 576

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM447 h

1st version kW : 157.0  
 Rated speed : 2200

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 0 681 343 009

Opening  
 pressure, bar : 172...175

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 19.00...21.00  
 Firing order : 6- 2- 4- 1- 5- 3

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 1100

Rack travel in mm : 10.90...11.00

Del.quantity cm<sup>3</sup>/ : 13.6...13.8

100 s: (13.3...14.0)

Spread cm<sup>3</sup> : 0.4

100 s: (0.8)

2nd speed rpm : 300.0

Rack travel in mm : 7.2...7.4

Del.quantity cm<sup>3</sup>/ : 1.4...2.0

100 s: (1.1...2.3)

Spread cm<sup>3</sup> : 0.4

100 s: (0.8)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 600

Rack travel in mm : 13.00...14.00

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 1100

Del.quantity : 136.0...138.0

1000 : (133.5...140.5)

Spread cm<sup>3</sup> : 4.00

1000 : (8.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 13.5

Testing:

1st rack travel in: 9.90

Speed rpm : 1140...1150

2nd rack travel in: 4.00  
Speed rpm : 1180...1210  
4th rack travel in: 1250  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 7.3

Testing:

Speed rpm : 200  
Minimum rack trave: 8.80  
Speed rpm : 300  
Rack travel in mm : 7.20...7.40  
Rack travel in mm : 2.00  
Speed rpm : 370...410

FUEL DELIVERY CHARACTERISTICS

1st version

Speed rpm : 600  
Del.quantity cm3/ : 113.0...116.0  
1000 s: (110.0...119.0)  
Spread cm3 : 5.00  
1000 s: (9.00)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 9.90  
Speed rpm : 1140...1150

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 130.0...150.0  
1000 s: (126.0...154.0)

Remarks:

:



## BOSCH INJ. PUMP TEST SPECIFICATIONS

### Note remarks

Test sheet : AIF 23,2 a  
 Edition : 27.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 630 806  
 Injection pump  
 Pump designation : PE12P130A920/6LS7842  
 EP type number : 0 412 630 802  
 Governor  
 Governor design. : RQV400...1150PA1004  
 Governor no. : 0 421 813 823

Customer-spec. information  
 Customer : IVECO-AIFG

Engine : 8291SRM...

### TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Test nozzle holder  
 assembly : 1 688 901 105  
 Opening  
 pressure, bar : 207...210  
 Orifice plate  
 diameter mm : 0,8  
 Test lines : 1 680 750 015  
 Outside diameter  
 x Wall thickness  
 x Length mm : 6.00x1.50x600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

### BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 5.00...5.10  
 : (4.95...5.15)  
 Rack travel in mm : 9.00...12.00

Firing order : 1- 4- 9- 8- 5- 2-  
 11- 10- 3- 6- 7- 12

Phasing : 0-15-60-75-120-135-  
 180-195-240-255-300-  
 315  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 1

### BASIC SETTING

1st speed rpm : 1150  
 Rack travel in mm : 11.90...12.00  
 Del. quantity cm<sup>3</sup>/ : 30.3...30.6  
 100 s : (29.9...30.9)  
 Spread cm<sup>3</sup> : 0.6  
 100 s : (1.0)

2nd speed rpm : 400.0  
 Rack travel in mm : 4.0...4.4  
 Del. quantity cm<sup>3</sup>/ : 3.5...4.1  
 100 s : (3.1...4.5)  
 Spread cm<sup>3</sup> : 1.0  
 100 s : (1.4)

(B) Setting of injection pump  
 with governor

### GUIDE SLEEVE TRAVEL

1st speed rpm : 400  
 travel mm : 2.60...3.00  
 2nd speed rpm : 500  
 travel mm : 4.20...4.80  
 3rd speed rpm : 650  
 travel mm : 5.80...6.40  
 4th speed rpm : 900  
 travel mm : 6.70...7.00  
 5th speed rpm : 1350  
 travel mm : 11.00...12.00

### GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 850  
 Rack travel in mm : 16.50...18.50

### FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 1150  
 Aneroid pressure h: 1600

Del.quantity : 303.0...306.0  
1000 : (299.5...309.5)  
Spread cm3 : 6.00  
1000 : (10.00)

#### RATED SPEED

1st version  
Control Lever  
position degrees: 106...114

Testing:  
1st rack travel in: 10.90  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1240...1270  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 63...71

Testing:  
Speed rpm : 100  
Minimum rack travel: 5.70  
Speed rpm : 400  
Rack travel in mm : 4.10...4.30

CONSTANT REGULATION  
Speed rpm : 400...550

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1600  
Rack travel mm : 11.90...12.00

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 6.70...6.90  
2nd pressure hPa : 340  
Rack travel in m: 8.00...8.10  
3rd pressure hPa : 1000  
Rack travel in m: 10.50...10.90

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1600  
Speed rpm : 700  
Del.quantity cm3/ : 347.0...354.0  
1000 s: (343.5...357.5)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 184.0...187.0  
1000 s: (180.5...190.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.90  
Speed rpm : 1190...1200

#### LOW IDLE

Speed rpm : 400  
Rack travel in mm : 4.00...4.40  
Del.quantity cm3/ : 35.0...41.0  
1000 s: (31.0...45.0)  
Spread cm3 : 10.00  
1000 s: (14.00)

Remarks:  
:  
Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

#### APPLICATION

Navy

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 22,0 c 1  
 Edition : 03.06.91  
 Replaces : -  
 Test oil : ISO-4113

Combination no. : 0 402 640 827

Injection pump  
 Pump designation : PE12P120A520LS7826  
 EP type number : 0 412 620 817  
 Governor  
 Governor design. : RQV350...1000PA870-12  
 Governor no. : 0 421 813 933

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 550.0

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 150...170

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 19.00...21.00  
 Firing order : 12- 1- 5- 9- 8- 3-  
 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-  
 180-225-240-285-300-  
 345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

**BASIC SETTING**

1st speed rpm : 1000

Rack travel in mm : 13.00...13.10

Del. quantity cm<sup>3</sup>/ : 24.2...24.4

100 s: (23.9...24.7)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.9

Del. quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 350  
 travel mm : 1.30...1.80

2nd speed rpm : 740  
 travel mm : 4.80...5.30

3rd speed rpm : 1058  
 travel mm : 8.30...8.80

4th speed rpm : 1260  
 travel mm : 11.00...12.00

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1125

Rack travel in mm : 15.20...17.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
Speed rpm : 1000  
Aneroid pressure h: 1600  
Del.quantity : 242.0...244.0  
1000 : (239.0...247.0)  
Spread cm<sup>3</sup> : 6.00  
1000 : (10.00)

RATED SPEED

1st version  
Control lever  
position degrees: 116...124

Testing:  
1st rack travel in: 12.00  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control Lever  
position degrees: 62...70

Testing:  
Speed rpm : 250  
Minimum rack travel: 7.30  
Speed rpm : 350  
Rack travel in mm : 5.30...5.90

CONSTANT REGULATION  
Speed rpm : 350...600

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 8.20...8.50

Measurement  
Speed 1/min : 500

1st pressure hPa : 400  
Rack travel in m: 9.40...9.60  
2nd pressure hPa : 700  
Rack travel in m: 11.00...11.20

START CUT-OUT

Speed 1/min : 310 (330)

FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1600  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 233.0...238.0  
1000 s: (230.0...241.0)  
Spread cm<sup>3</sup> : 10.00  
1000 s: (15.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 124.0...126.0  
1000 s: (121.0...129.0)  
Spread cm<sup>3</sup> : 10.00  
1000 s: (15.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.00  
Speed rpm : 1040...1050

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 330.0...350.0  
1000 s: (326.0...354.0)

Remarks:

:

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 22,0 c 2  
 Edition : 03.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 640 828  
 Injection pump  
 Pump designation : PE12P120A520LS7826  
 EP type number : 0 412 620 817  
 Governor  
 Governor design. : RQV350...1050PA870-13  
 Governor no. : 0 421 813 934  
 Customer-spec. information  
 Customer : MERCEDES-BENZ  
 Engine : OM 444 LA  
 1st version kW : 620.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42  
 Overflow valve : 1 417 413 025  
 Inlet press., bar : 1.50  
 Overflow quantity min. 1/h: 150...170  
 Test nozzle holder assembly : 1 688 901 019  
 Opening pressure, bar : 207...210  
 Orifice plate diameter mm : 0,8  
 Test lines : 1 680 750 067  
 Outside diameter x Wall thickness x Length mm : 6.00X1.50X1000  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
 Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 19.00...21.00  
 Firing order : 12- 1- 5- 9- 8- 3-  
 : 4- 11- 10- 2- 6- 7  
 Phasing : 0-45-60-105-120-165-  
 : 180-225-240-285-300-  
 : 345  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 12

## BASIC SETTING

1st speed rpm : 1050  
 Rack travel in mm : 14.30...14.40  
 Del. quantity cm<sup>3</sup>/ : 28.0...28.2  
 100 s: (27.7...28.5)  
 Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)  
 2nd speed rpm : 350.0  
 Rack travel in mm : 5.3...5.9  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)

## (B) Setting of injection pump with governor

### GUIDE SLEEVE TRAVEL

1st speed rpm : 350  
 travel mm : 1.30...1.80  
 2nd speed rpm : 570  
 travel mm : 3.30...3.80  
 3rd speed rpm : 900  
 travel mm : 5.40...5.90  
 4th speed rpm : 1107  
 travel mm : 7.80...8.30  
 5th speed rpm : 1204  
 travel mm : 9.80...10.30

### GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1175  
 Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version

Speed rpm : 1050  
Aneroid pressure h: 1800  
Del.quantity : 280.0...282.0  
1000 : (277.0...285.0)  
Spread cm<sup>3</sup> : 6.00  
1000 : (10.00)

RATED SPEED

1st version

Control lever  
position degrees: 114...122

Testing:

1st rack travel in: 13.30  
Speed rpm : 1090...1100  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1

Control lever  
position degrees: 59...67

Testing:

Speed rpm : 250  
Minimum rack trave: 7.30  
Speed rpm : 350  
Rack travel in mm : 5.30...5.90

CONSTANT REGULATION ?

Speed rpm : 350...600

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 8.20...8.50

Measurement

Speed 1/min : 500

1st pressure hPa : 300  
Rack travel in m: 9.60...9.70  
2nd pressure hPa : 1100  
Rack travel in m: 13.80...14.10

START CUT-OUT

Speed 1/min : 310 (330)

ND4

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1800  
Speed rpm : 750  
Del.quantity cm<sup>3</sup>/ : 278.0...282.0  
1000 s: (275.0...285.0)  
Spread cm<sup>3</sup> : 10.00  
1000 s: (15.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 124.0...126.0  
1000 s: (121.0...129.0)  
Spread cm<sup>3</sup> : 10.00  
1000 s: (15.0)

BREAKAWAY

1st version

1mm rack travel less than  
full load rack tr: 13.30  
Speed rpm : 1090...1100

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 330.0...350.0  
1000 s: (326.0...354.0)

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 22,0 c 3  
 Edition : 03.06.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 640 829  
 Injection pump  
 Pump designation : PE12P120A520LS7826  
 EP type number : 0 412 620 817  
 Governor  
 Governor design. : RQV350...900PA870-14  
 Governor no. : 0 421 813 935

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM 444 LA

1st version kW : 500.0  
 Rated speed : 1800

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 150...170

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 4.40...4.50  
 : (4.35...4.55)  
 Rack travel in mm : 19.00...21.00  
 Firing order : 12- 1- 5- 9- 8- 3-  
 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-  
 180-225-240-285-300-  
 345

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

**BASIC SETTING**

1st speed rpm : 900

Rack travel in mm : 12.90...13.00

Del.quantity cm<sup>3</sup>/ : 23.6...23.8

100 s: (23.3...24.1)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

2nd speed rpm : 350.0

Rack travel in mm : 5.3...5.9

Del.quantity cm<sup>3</sup>/ : 1.6...2.2

100 s: (1.3...2.5)

Spread cm<sup>3</sup> : 0.8

100 s: (1.2)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 350  
 travel mm : 1.30...1.80

2nd speed rpm : 655  
 travel mm : 4.80...5.30

3rd speed rpm : 960  
 travel mm : 8.70...9.20

4th speed rpm : 1120  
 travel mm : 11.00...12.00

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -1

Speed rpm : 1025

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 900  
Aneroid pressure h: 1600  
Del.quantity : 236.0...238.0  
1000 : (233.0...241.0)  
Spread cm3 : 6.00  
1000 : (10.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

#### Testing:

1st rack travel in: 11.90  
Speed rpm : 940...950  
2nd rack travel in: 4.00  
Speed rpm : 1010...1040  
4th rack travel in: 1350  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 62...70

#### Testing:

Speed rpm : 250  
Minimum rack travel: 7.30  
Speed rpm : 350  
Rack travel in mm : 5.30...5.90

#### CONSTANT REGULATION

Speed rpm : 350...600

Aneroid/Altitude  
Compensator Test

#### 1st version

##### Setting

Speed rpm : 500  
Pressure hPa : -  
Rack travel mm : 8.20...8.50

##### Measurement

Speed 1/min : 500

1st pressure hPa : 400  
Rack travel in m: 9.40...9.60  
2nd pressure hPa : 700  
Rack travel in m: 11.00...11.20

#### START CUT-OUT

Speed 1/min : 310 (330)

#### FUEL DELIVERY CHARACTERISTICS

#### 1st version

Aneroid pressure h: 1600  
Speed rpm : 750  
Del.quantity cm3/ : 228.0...232.0  
1000 s: (225.0...235.0)  
Spread cm3 : 10.00  
1000 s: (15.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 124.0...126.0  
1000 s: (121.0...129.0)  
Spread cm3 : 10.00  
1000 s: (15.0)

#### BREAKAWAY

#### 1st version

1mm rack travel less than

full load rack tr: 11.90  
Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 330.0...350.0  
1000 s: (326.0...354.0)

Remarks:

:



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MAN 21,0 b3  
 Edition : 27.05.91  
 Replaces : -  
 Test oil : ISO-4113  
 Combination no. : 0 402 640 830  
 Injection pump  
 Pump designation : PE12P120A520LS7824-2  
 EP type number : 0 412 620 816  
 Governor  
 Governor design. : RQV300...1150PA902-4  
 Governor no. : 0 421 813 870

Customer-spec. information  
 Customer : MAN

Engine : D2842LYE

1st version kW : 735.0  
 Rated speed : 2300

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 019

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 067

Outside diameter  
 x Wall thickness : 6.00X1.50X1000  
 x Length mm

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 4.50...4.60  
 : (4.45...4.65)  
 Rack travel in mm : 9.00...12.00  
 Firing order : 12- 1- 5- 9- 8- 3-  
 : 4- 11- 10- 2- 6- 7

Phasing : 0-45-60-105-120-165-  
 : 180-225-240-285-300-  
 Phasing : 345  
 Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 12

**BASIC SETTING**

1st speed rpm : 1150  
 Rack travel in mm : 13.60...13.70  
 Del.quantity cm<sup>3</sup>/ : 30.1...30.3  
 100 s: (29.8...30.6)  
 Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 500  
 Rack travel in mm : 9.1...9.3  
 Del.quantity cm<sup>3</sup>/ : 14.9...15.1  
 100 s: (14.6...15.4)  
 Spread cm<sup>3</sup> : 0.8  
 100 s: (1.2)  
 3rd speed rpm : 300  
 Rack travel in mm : 7.20...7.40  
 Del.quantity cm<sup>3</sup>/ : 5.2...6.0 \*  
 100 s: (-)  
 Spread cm<sup>3</sup> : -  
 100 s: (-)

(B) Setting of injection pump  
 with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.20...1.60  
 2nd speed rpm : 450  
 travel mm : 2.90...3.50  
 3rd speed rpm : 750  
 travel mm : 5.60...6.00  
 4th speed rpm : 1150  
 travel mm : 9.50...9.70  
 5th speed rpm : 1400  
 travel mm : 13.00...14.00

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1

Speed rpm : 1200  
Rack travel in mm : 15.20...17.80

#### FULL LOAD DELIV. AT FULL LOAD STOP

##### 1st version

Speed rpm : 1150  
Aneroid pressure h: 1300  
Del. quantity : 301.0...303.0  
1000 : (298.0...306.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

##### 1st version

Control lever  
position degrees: 118...126

##### Testing:

1st rack travel in: 12.60  
Speed rpm : 1190...1200  
2nd rack travel in: 4.00  
Speed rpm : 1290...1320  
4th rack travel in: 1400  
Speed rpm : 0.00...1.00

#### LOW IDLE 1

Control lever  
position degrees: 79...87

##### Testing:

Speed rpm : 100  
Minimum rack travel: 8.90  
Speed rpm : 300  
Rack travel in mm : 7.30...7.50  
Rack travel in mm : 2.00  
Speed rpm : 470...530

#### Aneroid/Altitude Compensator Test

##### 1st version

##### Setting

Speed rpm : 500  
Pressure hPa : 1300  
Rack travel mm : 13.60...13.70

##### Measurement

Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 9.10...9.30  
2nd pressure hPa : 100  
Rack travel in m: 9.50...9.60  
3rd pressure hPa : 470  
Rack travel in m: 12.40...12.80

#### START CUT-OUT

NCR

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

##### 1st version

Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm<sup>3</sup>/ : 149.0...151.0  
1000 s: (146.0...154.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

##### 1st version

1mm rack travel less than  
full load rack tr: 12.60  
Speed rpm : 1190...1200

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : 100.0...120.0 \*  
1000 s: (-)

Speed rpm : 100  
Del. quantity cm<sup>3</sup>/ : - \*\*  
1000 s: (-)  
Rack travel in mm : 17.5...21.0

#### HIGH IDLE

##### 1st version

Aneroid pressure h: -  
Speed rpm : 500  
Rack travel in mm : <7.00  
Del. quantity cm<sup>3</sup>/ : - \*\*  
1000 s: (-)

##### 2nd version

Aneroid pressure h: -  
Speed rpm : 500  
Rack travel in mm : < 7.50  
Del. quantity cm<sup>3</sup>/ : < 50.0  
1000 s: (-)

##### 3rd version

Aneroid pressure h: -  
Speed rpm : 500  
Rack travel in mm : 8.40...8.60  
Del. quantity cm<sup>3</sup>/ : 125.0...200.0  
1000 s: (-)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 7.20...7.40  
Del.quantity cm<sup>3</sup>/ : 52.0...60.0 \*  
1000 s: (-)

Remarks:  
: MAN-NR. 2-7960

\* applies to cylinders 4, 5, 6, 8, 10  
and 12  
\*\* applies for cylinders 1, 2, 3, 7, 9  
and 11

APPLICATION

Ship



**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 11,0 t  
 Edition : 27.05.91  
 Replaces : 26.4.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 838

Injection pump  
 Pump designation : PE6P120A320LS7808  
 EP type number : 0 412 626 816  
 Governor  
 Governor design. : RQ300/1050PA762-4  
 Governor no. : 0 421 801 390

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kw : 240.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600

Rack travel in mm : 13.90...14.10

Del.quantity cm<sup>3</sup>/ : 21.4...21.6

100 s: (21.1...21.9)

Spread cm<sup>3</sup> : 0.5

100 s: (0.9)

2nd speed rpm : 300.0

Rack travel in mm : 5.6...6.2

Del.quantity cm<sup>3</sup>/ : 1.3...1.9

100 s: (1.0...2.2)

Spread cm<sup>3</sup> : 0.6

100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position

Degree: -2

Speed rpm : 600

Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version

Speed rpm : 600

Aneroid pressure h: 900

Del.quantity : 214.0...216.0

1000 : (211.0...219.0)

Spread cm<sup>3</sup> : 5.00

1000 : (9.00)

**RATED SPEED**

1st version

Setting point:

Speed rpm : 600

Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.80  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1155...1185  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:

Speed rpm : 200  
Minimum rack travel: 7.90  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : 0.30  
2nd speed rpm : 1050  
Rack travel in m: 14.80...15.00  
3rd speed rpm : 800  
Rack travel in m: 15.00...15.20

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.90...14.10

Measurement

Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 10.70...10.90  
2nd pressure hPa : 550  
Rack travel in m: 12.90...13.10  
3rd pressure hPa : 1050  
Rack travel in m: 14.00...14.10 \*  
4th pressure hPa : 1150  
Rack travel in m: 14.40...14.60  
5th pressure hPa : -  
Rack travel in m: 9.50...9.80

START CUT-OUT

Speed 1/min : 220 (240)

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1450  
Speed rpm : 1050  
Del.quantity cm3/ : 231.0...234.0  
1000 s: (228.0...237.0)

Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: 1450  
Speed rpm : 800  
Del.quantity cm3/ : 237.0...241.0  
1000 s: (234.0...244.0)

Spread cm3 : 8.00  
1000 s: (12.0)

Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 142.0...144.0  
1000 s: (139.0...147.0)

Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version

1mm rack travel less than

full load rack tr: 13.80  
Speed rpm : 1095...1110

STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm3/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 11,0 t 2  
 Edition : 27.05.91  
 Replaces : 26.4.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 843

Injection pump  
 Pump designation : PE6P120A320LS7808  
 EP type number : 0 412 626 816  
 Governor  
 Governor design. : RQV300...1050PA797-2  
 Governor no. : 0 421 813 614

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM441 LA

1st version kW : 240.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow quantity min. 1/h: 100...120

Test nozzle holder assembly : 1 688 901 105

Opening pressure, bar : 207...210

Orifice plate diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter x Wall thickness x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)

Rack travel in mm : 20.00...21.00

Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600

---

Rack travel in mm : 13.90...14.10

---

Del.quantity cm<sup>3</sup>/ : 21.4...21.6  
 100 s: (21.1...21.9)

---

Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

---

2nd speed rpm : 300.0  
 Rack travel in mm : 5.6...6.2  
 Del.quantity cm<sup>3</sup>/ : 1.3...1.9  
 100 s: (1.0...2.2)

Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)

(B) Setting of injection pump with governor

**GUIDE SLEEVE TRAVEL**

1st speed rpm : 300  
 travel mm : 1.20...1.40

2nd speed rpm : 600  
 travel mm : 4.90...5.10

3rd speed rpm : 1075  
 travel mm : 7.40...7.60

4th speed rpm : 1100  
 travel mm : 8.00...8.40

5th speed rpm : 1150  
 travel mm : 9.00...9.40

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -1

Speed rpm : 1125  
 Rack travel in mm : 15.80...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h : 900  
Del.quantity : 214.0...216.0  
1000 : (211.0...219.0)  
Spread cm<sup>3</sup> : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 121...129

Testing:  
1st rack travel in: 13.80  
Speed rpm : 1095...1110  
2nd rack travel in: 4.00  
Speed rpm : 1170...1200  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 81...89

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.90  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20

CONSTANT REGULATION  
Speed rpm : 300...450

TORQUE CONTROL  
Dimension a mm : 0.30  
2nd speed rpm : 1050  
Rack travel in m: 14.80...15.00  
3rd speed rpm : 800  
Rack travel in m: 15.00...15.20  
4th speed rpm : 700

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 900  
Rack travel mm : 13.90...14.10

Measurement  
Speed 1/min : 600

1st pressure hPa : 300  
Rack travel in m: 13.70...13.90  
2nd pressure hPa : 550  
Rack travel in m: 12.90...13.10

3rd pressure hPa : 1050  
Rack travel in m: 14.00...14.10 \*  
4th pressure hPa : 1150  
Rack travel in m: 14.40...14.60  
5th pressure hPa : -  
Rack travel in m: 9.50...9.80

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1450  
Speed rpm : 1050  
Del.quantity cm<sup>3</sup>/ : 231.0...234.0  
1000 s: (228.0...237.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1450  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 237.0...241.0  
1000 s: (234.0...244.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 142.0...144.0  
1000 s: (139.0...147.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.80  
Speed rpm : 1095...1110

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 200.0...220.0  
1000 s: (196.0...224.0)

Remarks:  
:

\* Increase in control-rod travel with  
respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : SCA 11,1 m
Edition : 27.05.91
Replaces : 16.11.90
Test oil : ISO-4113
Combination no. : 0 402 646 872
Injection pump
Pump designation : PE6P120A72ORS7126Z
EP type number : 0 412 626 830
Governor
Governor design. : RQV200...1000PA725-6
Governor no. : 0 421 813 755

Customer-spec. information
Customer : SAAB-SCANIA

Engine : DSC11 08

TEST BENCH REQUIREMENTS

Test oil inlet temp. °C : 38...42
Overflow valve : 1 417 413 025
Inlet press., bar : 1.50
Test nozzle holder assembly : 1 688 901 019
Opening pressure, bar : 207...210
Orifice plate diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter
x Wall thickness
x Length mm : 6.00X1.50X600

(A) Injection pump setting values
Insp. values in parentheses
Set equal delivery quant.
per values

BEGINNING OF DELIVERY
Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10
: (4.95...5.15)
Rack travel in mm : 9.00...12.00

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 700
Rack travel in mm : 12.80...12.90
Del.quantity cm3/ : 20.4...20.6
100 s : (20.1...20.9)
Spread cm3 : 0.6
100 s : (0.9)

2nd speed rpm : 225.0
Rack travel in mm : 4.7...5.1
Del.quantity cm3/ : 1.8...2.2
100 s : (-)
Spread cm3 : 0.3
100 s : (0.6)

(B) Setting of injection pump
with governor

GUIDE SLEEVE TRAVEL
1st speed rpm : 225
travel mm : 1.20...1.60
2nd speed rpm : 350
travel mm : 2.40...3.00
3rd speed rpm : 650
travel mm : 4.40...5.00
4th speed rpm : 1045
travel mm : 8.40...8.60
5th speed rpm : 1150
travel mm : 9.70...10.10

GUIDE SLEEVE POSITION
Control-lever position
Degree: -1
Speed rpm : 1170
Rack travel in mm : 6.00...12.00

FULL LOAD DELIV. AT FULL LOAD STOP

1st version
Speed rpm : 700
Aneroid pressure h: 900
Del.quantity : 204.0...206.0
1000 : (201.0...209.0)



Spread cm<sup>3</sup> : 6.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 113...121

Testing:  
1st rack travel in: 11.80  
Speed rpm : 1040...1050  
2nd rack travel in: 4.00  
Speed rpm : 1140...1170  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 61...69

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.30  
Speed rpm : 225  
Rack travel in mm : 4.70...4.90  
Rack travel in mm : 2.00  
Speed rpm : 350...410

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 12.80...12.90

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.30...10.70  
2nd pressure hPa : 470  
Rack travel in m: 12.40...12.50  
3rd pressure hPa : 320  
Rack travel in m: 11.40...11.70

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 1000  
Del.quantity cm<sup>3</sup>/ : 197.0...205.0  
1000 s: (195.0...207.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 142.0...146.0  
1000 s: (140.0...148.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 11.80  
Speed rpm : 1040...1050

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 125.0...155.0  
1000 s: (-)  
Rack travel in mm : 10.30...10.70

#### LOW IDLE

Speed rpm : 225  
Rack travel in mm : 4.70...4.90

Remarks:  
Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

#### ADDITIONAL INFORMATION

Start-of-delivery setting with ROBO  
diaphragm.

For comb. with letter index see  
VDT-I-400/116.

For sealing see VDT-I-400/117.

Test specifications approved by Scania  
on November 14, 1989

Start of delivery - engine: 9° before  
TDC

Firing sequence of engine:  
1-5-3-6-2-4.

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : SCA 11,1 r  
Edition : 27.05.91  
Replaces : -  
Test oil : ISO-4113  
Combination no. : 0 402 646 887  
Injection pump  
Pump designation : PE6P120A720RS7188  
EP type number : 0 412 626 832  
Governor  
Governor design. : RQV200...950PA725-7  
Governor no. : 0 421 813 803

Customer-spec. information  
Customer : SCANIA

Engine : DSC 11 23

## TEST BENCH REQUIREMENTS

Test oil  
inlet temp. °C : 38...42  
Overflow valve : 1 417 413 025  
Inlet press., bar : 1.50  
Test nozzle holder  
assembly : 1 688 901 104  
Opening  
pressure, bar : 250...253  
Orifice plate  
diameter mm : 0,7  
Test lines : 1 680 750 008  
Outside diameter  
x Wall thickness  
x Length mm : 6.00x2.00x600  
(A) Injection pump setting values  
Insp. values in parentheses  
Set equal delivery quant.  
per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
Prestroke mm : 4.40...4.50  
                  : (4.35...4.55)  
Rack travel in mm : 9.00...12.00

N16

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

## BASIC SETTING

1st speed rpm : 700

Rack travel in mm : 13.80...13.90

Del. quantity cm<sup>3</sup>/ : 25.1...25.3

100 s: (24.8...25.6)

Spread cm<sup>3</sup> : 0.7

100 s: (1.0)

2nd speed rpm : 225.0

Rack travel in mm : 4.6...5.0

Del. quantity cm<sup>3</sup>/ : 1.5...1.9

100 s: (-)

Spread cm<sup>3</sup> : 0.5

100 s: (0.8)

(B) Setting of injection pump  
with governor

## GUIDE SLEEVE TRAVEL

1st speed rpm : 225  
travel mm : 1.20...1.60  
2nd speed rpm : 350  
travel mm : 2.40...3.00  
3rd speed rpm : 650  
travel mm : 4.50...5.10  
4th speed rpm : 1045  
travel mm : 8.40...8.60  
5th speed rpm : 1125  
travel mm : 9.30...9.70

## GUIDE SLEEVE POSITION

Control-lever position  
Degree: -1  
Speed rpm : 1150  
Rack travel in mm : 7.00...12.00

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 700  
Aneroid pressure h: 1500  
Del. quantity : 251.0...253.0  
1000 : (248.0...256.0)

Spread cm<sup>3</sup> : 7.00  
1000 : (10.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 110...118

Testing:  
1st rack travel in: 12.80  
Speed rpm : 990...1000  
2nd rack travel in: 4.00  
Speed rpm : 1110...1140  
4th rack travel in: 1250  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 60...68

Testing:  
Speed rpm : 100  
Minimum rack travel: 6.20  
Speed rpm : 225  
Rack travel in mm : 4.60...4.80  
Rack travel in mm : 2.00  
Speed rpm : 350...410

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 1500  
Rack travel mm : 13.80...13.90

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 10.20...10.60  
2nd pressure hPa : 440  
Rack travel in m: 12.00...12.10  
3rd pressure hPa : 270  
Rack travel in m: 10.90...11.10

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1500  
Speed rpm : 950  
Del.quantity cm<sup>3</sup>/ : 232.0...240.0  
1000 s: (230.0...242.0)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 151.0...155.0  
1000 s: (149.0...157.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.80  
Speed rpm : 990...1000

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 150.0...180.0  
1000 s: (-)  
Rack travel in mm : 10.20...10.60

#### LOW IDLE

Speed rpm : 225  
Rack travel in mm : 4.60...4.80

Remarks:  
Delivery-valve spring pre-tension  
3.2...3.4 mm.  
Permissible alteration of 3.0...3.5 mm

Because of flattening, set the spring  
preload on new delivery-valve holders  
to 2.9...3.1 mm.

Start-of-delivery setting with ROBO  
diaphragm.

#### APPLICATION

Navy

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 9,6 g  
 Edition : 03.06.91  
 Replaces : 3.5.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 915

Injection pump  
 Pump designation : PE6P120A320LS7836  
 EP type number : 0 412 626 840  
 Governor  
 Governor design. : RQ300/1050PA972  
 Governor no. : 0 421 801 542

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 200.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X1.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600  


---

 Rack travel in mm : 12.40...12.60  


---

 Del.quantity cm<sup>3</sup>/ : 18.2...18.4  
 100 s: (17.9...18.7)  


---

 Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)  


---

2nd speed rpm : 300.0  
 Rack travel in mm : 5.5...5.8  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -2  
 Speed rpm : 600  
 Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 600  
 Aneroid pressure h: 800  
 Del.quantity : 182.0...184.0  
 1000 : (179.0...187.0)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

**RATED SPEED**

1st version  
 Setting point:  
 Speed rpm : 600  
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 12.10  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.6

Testing:

Speed rpm : 200  
Minimum rack trave: 7.50  
Speed rpm : 300  
Rack travel in mm : 5.50...5.80  
Rack travel in mm : 2.00  
Speed rpm : 380...420

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 12.40...12.60

Measurement

Speed 1/min : 600  
1st pressure hPa : 350  
Rack travel in m: 10.20...10.40  
2nd pressure hPa : 500  
Rack travel in m: 11.60...11.80  
3rd pressure hPa : 1000  
Rack travel in m: 12.60...12.80  
4th pressure hPa : 1150  
Rack travel in m: 12.90...13.10  
5th pressure hPa : -  
Rack travel in m: 9.50...9.80

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1400  
Speed rpm : 1050  
Del.quantity cm3/ : 201.0...204.0  
1000 s: (198.0...207.0)  
Soread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1400  
Speed rpm : 800  
Del.quantity cm3/ : 202.0...206.0  
1000 s: (199.0...209.0)

Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 12.10  
Speed rpm : 1090...1105

Remarks:

:

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 9,6 o 2  
 Edition : 27.05.91  
 Replaces : 22.3.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 922

Injection pump  
 Pump designation : PE6P120A32QLS7834  
 EP type number : 0 412 626 841  
 Governor  
 Governor design. : RQ300/1050PA972-2  
 Governor no. : 0 421 801 556

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 213.0  
 Rated speed : 2100

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.50...5.60  
 : (5.45...5.65)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600  


---

 Rack travel in mm : 13.70...13.90  


---

 Del. quantity cm<sup>3</sup>/ : 21.9...21.1  
 100 s: (21.6...21.4)  


---

 Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 300.0  
 Rack travel in mm : 6.4...7.0  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -2  
 Speed rpm : 600  
 Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 600  
 Aneroid pressure h: 800  
 Del. quantity : 219.0...211.0  
 1000 : (216.0...214.0)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

**RATED SPEED**

1st version  
 Setting point:  
 Speed rpm : 600  
 Rack travel in mm : 20.0

Testing:

1st rack travel in: 13.10  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1175...1205  
4th rack travel in: 1300  
Speed rpm : 0.00...1.50

LOW IDLE 1

Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 6.7

Testing:

Speed rpm : 200  
Minimum rack travel: 8.50  
Speed rpm : 300  
Rack travel in mm : 6.40...7.00  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL

Dimension a mm : ?  
2nd speed rpm : 1050  
Rack travel in m: 14.10...14.30  
3rd speed rpm : 800  
Rack travel in m: 14.30...14.50

Aneroid/Altitude  
Compensator Test

1st version

Setting  
Speed rpm : 600  
Pressure hPa : 800  
Rack travel mm : 13.70...13.90

Measurement

Speed 1/min : 600  
1st pressure hPa : 250  
Rack travel in m: 9.90...10.10  
2nd pressure hPa : 550  
Rack travel in m: 12.50...12.70  
3rd pressure hPa : 1100  
Rack travel in m: 13.80...14.00 \*  
4th pressure hPa : 1250  
Rack travel in m: 14.10...14.30  
5th pressure hPa : -  
Rack travel in m: 9.20...9.50

FUEL DELIVERY CHARACTERISTICS

1st version

Aneroid pressure h: 1500  
Speed rpm : 1050

Del.quantity cm3/ : 216.0...219.0  
1000 s: (213.0...222.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1500  
Speed rpm : 800  
Del.quantity cm3/ : 219.0...223.0  
1000 s: (216.0...226.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm3/ : 122.0...124.0  
1000 s: (119.0...127.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.10  
Speed rpm : 1090...1105

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

BOSCH INJ. PUMP TEST SPECIFICATIONS

Note remarks

Test sheet : UNI 13, 8 h  
 Edition : 27.05.91  
 Replaces : 22.3.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 923

Injection pump  
 Pump designation : PE6P130A720RS7225  
 EP type number : 0 412 636 817  
 Governor  
 Governor design. : RQV300...900PA946  
 Governor no. : 0 421 813 845

Customer-spec. information  
 Customer : IVECO-UNIC

Engine : 8210.42.061

TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42

Overflow valve : 1 417 413 025

Inlet press., bar : 1.50

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 015

Outside diameter  
 x Wall thickness  
 x Length mm : 6.00X1.50X600

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

BEGINNING OF DELIVERY

Test pressure, bar: 25...27

Prestroke mm : 5.00...5.10  
 : (4.95...5.15)

Rack travel in mm : 11.50...12.50

Firing order : 1- 5- 3- 6- 2- 4

Phasing : 0-60-120-180-240-300

Tolerance + - ° : 0.50 (0.75)

Time to cyl. no. : 1

BASIC SETTING

1st speed rpm : 900

Rack travel in mm : 11.60...11.70

Del.quantity cm<sup>3</sup>/ : 27.0...27.3  
 100 s: (26.6...27.6)

Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)

2nd speed rpm : 300.0  
 Rack travel in mm : 3.4...3.8  
 Del.quantity cm<sup>3</sup>/ : 1.9...2.5  
 100 s: (1.5...2.9)

Spread cm<sup>3</sup> : 1.0  
 100 s: (1.4)

(B) Setting of injection pump with governor

GUIDE SLEEVE TRAVEL

1st speed rpm : 945  
 travel mm : 8.40...8.60

2nd speed rpm : 300  
 travel mm : 1.00...1.40

3rd speed rpm : 500  
 travel mm : 3.30...3.90

4th speed rpm : 700  
 travel mm : 5.50...5.90

5th speed rpm : 1200  
 travel mm : 11.00...12.00

GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1

Speed rpm : 935

Rack travel in mm : 15.20...17.80

FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
 Speed rpm : 900  
 Aneroid pressure h: 900  
 Del.quantity : 270.0...273.0  
 1000 : (266.5...276.5)



Spread cm<sup>3</sup> : 6.00  
1000 : (10.00)

#### RATED SPEED

1st version  
Control Lever  
position degrees: 72...80

Testing:  
1st rack travel in: 10.60  
Speed rpm : 940...950  
2nd rack travel in: 4.00  
Speed rpm : 1010...1040  
4th rack travel in: 1200  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control Lever  
position degrees: 76...84

Testing:  
Speed rpm : 100  
Minimum rack travel: 5.10  
Speed rpm : 300  
Rack travel in mm : 3.50...3.70

CONSTANT REGULATION  
Speed rpm : 320...440

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 500  
Pressure hPa : 900  
Rack travel mm : 11.60...11.70

Measurement  
Speed 1/min : 500

1st pressure hPa : -  
Rack travel in m: 8.90...9.10  
2nd pressure hPa : 350  
Rack travel in m: 11.00...11.10  
3rd pressure hPa : 285  
Rack travel in m: 9.50...9.90

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 900  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 285.0...292.0  
1000 s: (281.5...295.5)  
Aneroid pressure h: -  
Speed rpm : 500

Del.quantity cm<sup>3</sup>/ : 202.0...205.0  
1000 s: (198.5...208.5)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 10.60  
Speed rpm : 940...950

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del.quantity cm<sup>3</sup>/ : 125.0...155.0  
1000 s: (121.0...159.0)

#### LOW IDLE

Speed rpm : 300  
Rack travel in mm : 3.40...3.80  
Del.quantity cm<sup>3</sup>/ : 19.0...25.0  
1000 s: (15.0...29.0)  
Spread cm<sup>3</sup> : 10.00  
1000 s: (14.00)

Remarks:

Check electrically unlatched starting  
fuel delivery (EES) with 24 volt.

On activation of the starting solenoid,  
the start position must be reached.

Setting and blocking of pointer of  
start-of-delivery sensor on cyl. 1  
start of delivery

**BOSCH INJ. PUMP TEST SPECIFICATIONS**

Note remarks

Test sheet : MB 9,6 p  
 Edition : 27.05.91  
 Replaces : 24.4.91  
 Test oil : ISO-4113

Combination no. : 0 402 646 924

Injection pump  
 Pump designation : PE6P120A320LS7837  
 EP type number : 0 412 626 842  
 Governor  
 Governor design. : RQ300/950PA971-3  
 Governor no. : 0 421 801 557

Customer-spec. information  
 Customer : MERCEDES-BENZ

Engine : OM401 LA

1st version kW : 250.0  
 Rated speed : 1900

**TEST BENCH REQUIREMENTS**

Test oil  
 inlet temp. °C : 38...42

Overflow valve  
 : 1 417 413 025

Inlet press., bar : 1.50

Overflow  
 quantity min. 1/h: 100...120

Test nozzle holder  
 assembly : 1 688 901 105

Opening  
 pressure, bar : 207...210

Orifice plate  
 diameter mm : 0,8

Test lines : 1 680 750 075

Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000

(A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

**BEGINNING OF DELIVERY**

Test pressure, bar: 25...27

Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1

Phasing : 0-60-120-180-240-300  
 -360  
 Tolerance + - ° : 0.50 (0.75)  
 Time to cyl. no. : 6

**BASIC SETTING**

1st speed rpm : 600

---

Rack travel in mm : 14.70...14.90

---

Del.quantity cm<sup>3</sup>/ : 23.3...23.5  
 100 s: (23.0...23.8)

---

Spread cm<sup>3</sup> : 0.5  
 100 s: (0.9)

2nd speed rpm : 300.0  
 Rack travel in mm : 5.6...6.2  
 Del.quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)

**GUIDE SLEEVE POSITION**

Control-lever position  
 Degree: -2  
 Speed rpm : 600  
 Rack travel in mm : 19.20...20.80

**FULL LOAD DELIV. AT FULL LOAD STOP**

1st version  
 Speed rpm : 600  
 Aneroid pressure h: 1000  
 Del.quantity : 233.0...235.0  
 1000 : (230.0...238.0)  
 Spread cm<sup>3</sup> : 5.00  
 1000 : (9.00)

**RATED SPEED**

1st version  
 Setting point:  
 Speed rpm : 600  
 Rack travel in mm : 20.0

Testing:  
1st rack travel in: 14.50  
Speed rpm : 990...1005  
2nd rack travel in: 4.00  
Speed rpm : 1065...1095  
4th rack travel in: 1200  
Speed rpm : 0.00...1.50

LOW IDLE 1  
Setting point w/out bumper spring  
Speed rpm : 300  
Rack travel in mm : 5.9

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.90  
Speed rpm : 300  
Rack travel in mm : 5.60...6.20  
Rack travel in mm : 2.00  
Speed rpm : 380...420

TORQUE CONTROL  
Dimension a mm : 0.40  
2nd speed rpm : 950  
Rack travel in m: 15.50...15.70  
3rd speed rpm : 800  
Rack travel in m: 15.60...15.80

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.70...14.90

Measurement  
Speed 1/min : 600

1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 600  
Rack travel in m: 13.50...13.70  
3rd pressure hPa : 1250  
Rack travel in m: 14.80...15.00 \*  
4th pressure hPa : 1450  
Rack travel in m: 15.40...15.60  
5th pressure hPa : -  
Rack travel in m: 9.30...9.50

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1800  
Speed rpm : 950

Del.quantity cm<sup>3</sup>/ : 251.0...254.0  
1000 s: (248.0...257.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del.quantity cm<sup>3</sup>/ : 250.0...254.0  
1000 s: (247.0...257.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del.quantity cm<sup>3</sup>/ : 135.0...137.0  
1000 s: (132.0...140.0)  
Spread cm<sup>3</sup> : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than

full load rack tr: 14.50  
Speed rpm : 990...1005

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm

# BOSCH INJ. PUMP TEST SPECIFICATIONS

## Note remarks

Test sheet : MB 11,1 b 1  
 Edition : 03.06.91  
 Replaces : 24.4.91  
 Test oil : ISO-4113  
  
 Combination no. : 0 402 646 931  
  
 Injection pump  
 Pump designation : PE6P120A320LS7837  
 EP type number : 0 412 626 842  
 Governor  
 Governor design. : RQV300...1050PA797-  
 24  
 Governor no. : 0 421 813 911  
  
 Customer-spec. information  
 Customer : MERCEDES-BENZ  
  
 Engine : OM441 LA  
  
 1st version kw : 250.0  
 Rated speed : 2100

## TEST BENCH REQUIREMENTS

Test oil  
 inlet temp. °C : 38...42  
  
 Overflow valve  
 : 1 417 413 025  
  
 Inlet press., bar : 1.50  
  
 Overflow  
 quantity min. 1/h: 100...120  
  
 Test nozzle holder  
 assembly : 1 688 901 105  
  
 Opening  
 pressure, bar : 207...210  
  
 Orifice plate  
 diameter mm : 0,8  
  
 Test lines : 1 680 750 075  
  
 Outside diameter  
 x Wall thickness  
 x Length mm : 8.00X2.50X1000  
  
 (A) Injection pump setting values  
 Insp. values in parentheses  
 Set equal delivery quant.  
 per values \_\_\_\_\_

## BEGINNING OF DELIVERY

Test pressure, bar: 25...27  
  
 Prestroke mm : 5.20...5.30  
 : (5.15...5.35)  
 Rack travel in mm : 20.00...21.00  
 Firing order : 6- 3- 5- 2- 4- 1  
  
 Phasing : 0-60-120-180-240-300  
  
 Tolerance + - ° : 0.50 (0.75)  
  
 Time to cyl. no. : 6

## BASIC SETTING

1st speed rpm : 600  


---

 Rack travel in mm : 14.70...14.90  


---

 Del. quantity cm<sup>3</sup>/ : 23.4...23.6  


---

 100 s: (23.1...23.9)  


---

 Spread cm<sup>3</sup> : 0.5  


---

 100 s: (0.9)  


---

 2nd speed rpm : 300.0  
 Rack travel in mm : 6.3...6.9  
 Del. quantity cm<sup>3</sup>/ : 1.6...2.2  
 100 s: (1.3...2.5)  
 Spread cm<sup>3</sup> : 0.6  
 100 s: (1.0)

## (B) Setting of injection pump with governor

### GUIDE SLEEVE TRAVEL

1st speed rpm : 300  
 travel mm : 1.00...1.50  
 2nd speed rpm : 608  
 travel mm : 4.80...5.30  
 3rd speed rpm : 820  
 travel mm : 5.90...6.40  
 4th speed rpm : 1108  
 travel mm : 8.30...8.80  
 5th speed rpm : 1280  
 travel mm : 11.00...12.00

### GUIDE SLEEVE POSITION

Control-lever position  
 Degree: -1  
 Speed rpm : 1100  
 Rack travel in mm : 15.20...17.80

## FULL LOAD DELIV. AT FULL LOAD STOP

1st version  
Speed rpm : 600  
Aneroid pressure h : 1000  
Del. quantity : 234.0...236.0  
1000 : (231.0...239.0)  
Spread cm3 : 5.00  
1000 : (9.00)

#### RATED SPEED

1st version  
Control lever  
position degrees: 118...126

Testing:  
1st rack travel in: 13.90  
Speed rpm : 1090...1105  
2nd rack travel in: 4.00  
Speed rpm : 1165...1195  
4th rack travel in: 1300  
Speed rpm : 0.00...1.00

LOW IDLE 1  
Control lever  
position degrees: 81...89

Testing:  
Speed rpm : 200  
Minimum rack travel: 7.70  
Speed rpm : 300  
Rack travel in mm : 6.30...6.90

CONSTANT REGULATION  
Speed rpm : 300...550

TORQUE CONTROL  
Dimension a mm : 1.00  
2nd speed rpm : 1050  
Rack travel in m: 14.90...15.10  
3rd speed rpm : 800  
Rack travel in m: 15.50...15.70

Aneroid/Altitude  
Compensator Test

1st version  
Setting  
Speed rpm : 600  
Pressure hPa : 1000  
Rack travel mm : 14.70...14.90

Measurement  
Speed 1/min : 600

1st pressure hPa : 200  
Rack travel in m: 10.00...10.20  
2nd pressure hPa : 600  
Rack travel in m: 13.70...13.90

3rd pressure hPa : 1250  
Rack travel in m: 14.80...15.00 \*  
4th pressure hPa : 1400  
Rack travel in m: 15.30...15.50  
5th pressure hPa : -  
Rack travel in m: 9.30...9.50

#### START CUT-OUT

Speed 1/min : 220 (240)

#### FUEL DELIVERY CHARACTERISTICS

1st version  
Aneroid pressure h: 1800  
Speed rpm : 1050  
Del. quantity cm3/ : 235.0...238.0  
1000 s: (232.0...241.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: 1800  
Speed rpm : 800  
Del. quantity cm3/ : 248.0...252.0  
1000 s: (245.0...255.0)  
Spread cm3 : 8.00  
1000 s: (12.0)  
Aneroid pressure h: -  
Speed rpm : 500  
Del. quantity cm3/ : 135.0...137.0  
1000 s: (132.0...140.0)  
Spread cm3 : 8.00  
1000 s: (12.0)

#### BREAKAWAY

1st version  
1mm rack travel less than  
full load rack tr: 13.90  
Speed rpm : 1090...1105

#### STARTING FUEL DELIVERY

Speed rpm : 100  
Del. quantity cm3/ : 220.0...240.0  
1000 s: (216.0...244.0)

Remarks:

\* Increase in control-rod travel with respect to setting at least 0.1 mm